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GREEN SCENE

THE PENNSYLVANIA HORTICULTURAL SOCIETY • Sept./Oct. 1995 \$2.75

***"Best of Show" winners
for their Bounty
Basket at 1994
Harvest Show.***

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Front Cover: Ken Selody (left) and Ray Rogers (right), co-exhibitors, won 'Best of Show' for their 1994 Bounty Basket of 93 specimens of squash. See page 7.

photo by Ira Beckoff



Grow with us.

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WE DON'T GARDEN RIGHT

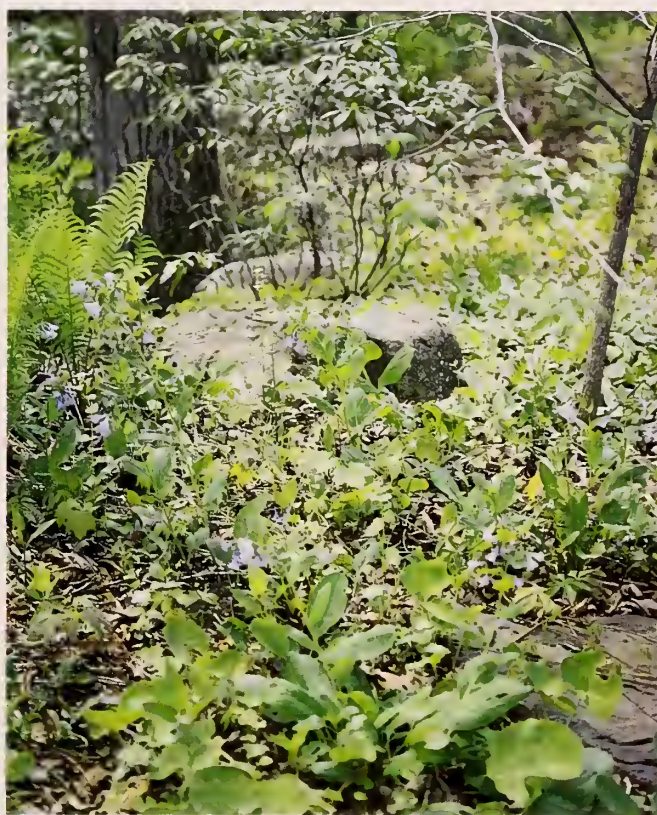
by Sara Stein

*Sara Stein, author of the highly regarded books *My Weeds, A Gardener's Botany** and *Noah's Garden: Restoring the Ecology of Our Own Back Yard**, discovered that when we thoughtlessly clear our landscapes we create a killing field for the natural life there. Here Stein tells us how she set about to restore her own property to its natural health after just such a mishap.*

photos by Sara Stein



By stranding "leftover" forest trees on suburban lawn, homeowners deprive the soil of the nutrients their leaf litter provides, and the rich life that could thrive there. Mowing and raking also preclude woodland regeneration: There will be no young trees to take the elders' places when they die.



Such stands of trees can be transformed to woodland habitat by underplanting them with suitable smaller trees, shrubs, ferns, and wildflowers. Here, a group of oaks and hickories was improved by underplanting *Kalmia latifolia* (mountain-laurel) and *Amelanchier canadensis* (serviceberry). The groundcover includes ferns, *Mertensia virginica* (Virginia bluebell), and *Sanguinaria canadensis* (bloodroot). Stein prepared the soil solely by letting leaf litter accumulate.

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I'm writing this for a modest reason. I want to change the whole suburban landscape.

I want to walk into any roadside nursery and see wild roses. I want every landscaper to know their local berries like they know the alphabet. I want wildflower societies to treasure native grasses like they treasure the flowers that grow among them. I want growers to see trees as woodlands, shrubs

as hedgerows, perennials as meadows. I want professionals not just to landscape

**My Weeds, A Gardener's Botany*, Harper & Rowe, N.Y. 1988 and *Noah's Garden: Restoring the Ecology of Our Own Back Yard*, Houghton Mifflin, Boston, 1993. This article has been adapted from a speech Sara Stein delivered in 1994 to the Landscaping with Native Plants Conference in Cullowhee, North Carolina, and the Bioneers Conference in San Francisco.

with native plants, but to landscape with native ecosystems.

And if I seem to have left out ordinary homeowners — the backyard gardeners, the ones who get to mow the lawn — I want more from you than from anyone. Because you're the ones who own the land.

That's a strange thing, to own the land: The perception of ownership isn't shared by any of the creatures who live on it, or

WE DON'T GARDEN RIGHT

live from it, or cross over it. You own the plants, but not the relationships by which their roots are nourished, or their flowers are pollinated, or their seeds are dispersed. You own the dirt, but not the living systems that maintain it. Yet ownership gives you license to harm all these things that don't belong to you.

The way we've landscaped our suburbs is harmful, and I'll tell you why by telling you the story of my own piece of land. About 16 years ago, my husband and I bought a few acres of neglected New England farmland. By neglected, I mean that nothing had been done to it for maybe 20 years. So the woods were choked with brush, the meadow was tangled in vines, and you couldn't even see the pond through the brambles.

We were too busy with the house at first to do any clearing. So for a few years we enjoyed what came with the thorns and tangles. We saw pheasants and grouse. There were all sorts of small animals — mostly common ones like woodchucks, but we saw foxes trotting through, and sometimes we heard owls. There were plenty of grasshoppers in the tall grass, and the pond was full of frogs. I remember how the ladybugs used to overwinter in the window frames and crawl out by the hundreds in the spring.

Finally, we got around to clearing. We cleaned the woods of underbrush, cut down junipers and cherries, tore out the vines, and mowed nearly the whole place to lawn. Then we planted it in typical suburban style — the same as you see everywhere all across the country — and of course we kept it neat: sheared, mowed, raked, and dead-headed.

But the fact is that we groomed the life out of our land, because what we cleared away was those animals' food and shelter, and what we substituted for it offered nothing to eat and no place to hide. In the space of a few years, we managed to make our land uninhabitable to nearly all the creatures that had shared it.

I might not have noticed if it hadn't happened so fast. For the first few springs the place was filled with birds. Then we whacked down the junipers. The next spring there were hardly any birds. So of course I noticed right away; what took a lot longer was to take the blame.

I'd been interested in biology all my life, but it was as though what I knew about the natural world was in one compartment in my brain, and gardening was in another. What finally connected the two was memories of childhood. Thinking back, I realized that even the liveliness we'd en-



photo by Sara Stein

Woodland also can be grown from scratch using pioneer tree species that normally would move into a lawn were it left to nature. The author planted saplings of *Betula nigra* (river birch) on an excavated portion of her yard. Seven years later, the birch grove is surprisingly mature, and so are the rhododendrons and azaleas with which it was underplanted. The soil, originally mulched, became ready to receive such groundcovers as *Tiarella cordifolia* (foamflower) and *Iris cristata* (crested iris) within a few years. This fall, a planting of oak saplings will direct the grove toward its more permanent forest form.

You can't run a supermarket on just bread, and you can't run an ecosystem on just lawn . . . Lawns and foundation plantings are a lot simpler than the wild landscapes they replace. And for an ecosystem, being simple is the same as being simple-minded.

joyed at first wasn't much compared to how things used to be. When I was a kid, vanishing species like box turtles and luna moths were still fairly common. Even 20 years ago, no one thought of buying ladybugs in cans. Today, kids are growing up on grass without grasshoppers.

What's happened in those 50 years between my childhood and theirs is a wholesale change in the landscape: from fields to lawns, from thickets to foundation plantings, from woods to specimen trees.

The loss of wildlife that's accompanied that change says very clearly that there's something wrong with how we treat the land. We don't garden right. The style of landscape we prefer is not a good one. The reason we have to buy ladybugs in cans is that our own have starved to death.

By the time I came to my senses, the grouse and pheasants were gone. So were the owl and the small mammals that had

been its food. The fox had left. Even the woodchuck had moved away. I began to list the missing. They included ladybugs, fireflies, grasshoppers, butterflies, even newts and toads.

On the other hand, we had some things we hadn't had before.

We had bags and bags of fertilizers in the shed. A pile of mulch behind the garage. And in the garage a tractor, a mower, a weed whacker, a leaf blower, and a couple of backpack sprayers. We had pests and the dozen pesticides needed to control them. We had a sprinkler system. Also a lawn company. And an arborist.

And we had more work than it was fun to do.

That got me to thinking. Why was it that this land that got along fine without us when it was wild couldn't get along without us anymore? It seemed to me that since everything had happened all at once, there must be some connection between the loss of animals and this new helplessness.

So I sat down with a bunch of books on ecology to see what I could see, and the first thing I saw was that by wiping out tons of food — heaps of grapes, blackberries, rose hips; seeds and grain and nectar — we'd drained the fuel from our land. Food is what runs ecosystems, so one reason we have to put so much energy into maintaining our land is that it lacks the energy to run itself.



In this age of weeds, Mother Nature no longer can be relied on to restore neglected habitat. The Stein pond shore was overrun with *Celastrus orbiculatus* (oriental bittersweet), *Rosa multiflora* (multiflora rose), and *Berberis thunbergii* (japanese barberry) before clearing nine years ago.



Clearing these invasive alien species allowed the remaining native woodland to flourish. Meadow areas in the foreground, at first mowed to lawn, were later replanted with wetland species.



The sunny shore is now home to a variety of native wildflowers, including the brilliant purple *Vernonia noveboracensis* (New York ironweed), and yellow *Rudbeckia subtomentosa* (sweet black-eyed susan).

Put simply, if you want birds to eat your pests in June, you have to feed them berries in September.

But the answer to my question wasn't just a matter of calories. It was as though we'd put a pretzel stand where there used to be a supermarket. You can't run a super-

market on just bread, and you can't run an ecosystem on just lawn. We've all heard of biodiversity. What diversity comes down to is lots of different kinds of food for lots of different kinds of customers that together support the whole enterprise. Lawns and foundation plantings are a lot simpler than

the wild landscapes they replace. And for an ecosystem, being simple is the same as being simple-minded.

Let's say we simplify our society by removing a few kinds of people, like carpenters or doctors. With each removal, we lose the knowledge that kind of person had, and the more kinds we remove, the more helpless our society becomes.

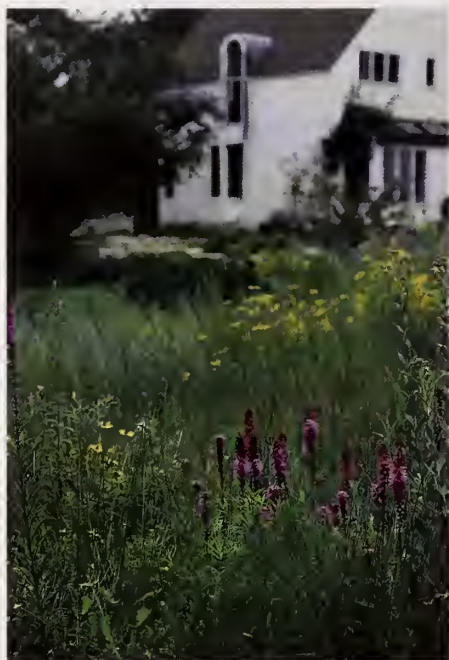
It's the same in natural communities. Each species has some bit of know-how that no other species has. Removing any plant or animal excises that portion of intelligence, and leaves the land more stupid.

An example is what my husband and I did by mowing down the rushes around our pond. You don't think of rushes as having high IQs, but just by being able to grow at the water's edge, they provide habitat for dragonflies and frogs. So by cutting out that apparently minor talent, we also damaged the considerably greater intelligence involved in controlling the mosquito population.

I was pretty shocked by some of the things I learned. When we bag leaves and put them out with the trash, we're also throwing out next summer's generation of moths and butterflies that overwinter in leaf litter, and if we do that year after year, we eventually wipe out the wildflowers those moths and butterflies pollinate. And with those flowers' seeds goes a major food source for the ants that do more to turn and aerate soil than all the gardeners in the world.

Conservation is not comprised of a list of protected species, or of this piece of ground as opposed to another, or of the water in the pond but not its rushes. It addresses the whole system, right down to the microbes in the ground.

This, finally, was the most shocking



It is widely judged that "natural" plantings should be confined to the backyard for private enjoyment only, but this upland meadow where *Rudbeckia hirta* (black-eyed susan) blooms with *Liatris spicata* (dense blazingstar) in a grassland of *Schizachyrium scoparium* (little bluestem) makes a presentable foreground to the Stein home.

thing I learned: It's all connected, like neurons in a brain or chips in a computer. And what we've done to the land is this: We've pulled its circuits.

Natural ecosystems are responsible for our physical environment. Land that's properly connected cools us in the summer and cuts the winter wind. It conserves water and makes the soil richer. It supports all those animals that, in turn, control pests, pollinate flowers, plant seeds, decay litter, and recycle nutrients. These are all services that any piece of land can do — and do better, and do cheaper, than I can with all that junk in my garage.

So this isn't just a question of bringing butterflies into the garden. Restoring the ecology of suburban land is an act of environmental conservation every bit as important as preserving wilderness. And it is a viable alternative: Where you can't preserve, you can replant.

That's what we've been doing, and that's what I want you to do. Replanting is the most amazing adventure you can ever undertake because it's like re-educating the land, or recovering lost data. The grass makes grain, the flowers make nectar, the bushes make fruit, and back come the animals, and away goes all that life-support equipment that seemed so necessary before.

I won't say that natural systems can be

put back together as quickly as they were taken apart, or as easily. I don't say that they can ever again be just like they used to be. In these 50 years, the land has been subdivided over and over again, so the scale is much smaller than it's ever been before and with all that disturbance, weeds we'd never heard of then are a major problem now.

Still, there's a lot of damage we can undo. If lawns replaced fields, at least some of that lawn can be restored to meadow. We don't have to be stuck in this rut of rhododendrons. There's a crew of berries waiting to be reassembled into thickets. And if all we have left are stands of trees, we can make them into woods again. Even on the smallest scale — I mean a yard of less than an eighth of an acre — we can plant a landscape that's similar enough to wild examples that the land will get to work again.

By similar to wild examples, I mean that the emphasis should be on native plants, especially ones from your own region. Each local species that you plant reconnects a circuit, communicates with other forms of life, makes contact with perhaps a score of other species so diversity increases twentyfold for each kind of plant you add.

Or much more than that. As I began to reassemble rushes and sedges around the pond, burr reed, wool grass, salt bush, pickerel weed, lobelias, and monkey flowers came on their own to join them.

So the most important thing I mean by similar to wild examples is putting the basics back where they belong, meadow grasses for flowers to bed down in, azaleas in the woods, not on the lawn.

I had gardened with prejudice, chose a plant because I liked it and didn't like another. But this most gorgeous flower may grow with that most common grass, and what's exciting is not how each might look in a close-up photograph, but how the land comes to life again when the whole community is brought back together.

I look out my kitchen window over a dividing line of sorts: To one side, the lawn, just lying there looking green. To the other side, the meadow with its butterflies, dragonflies, grasshoppers, and finches. Even at night, you turn in that direction to hear the crickets or see the fireflies. That's where the swallows fly in summer. That's where the fox hunts in winter. And in the fall, when the dogwood thicket's fruiting and the meadow's going to seed, birds feast there all day long, while the lawn stays empty.

Birds are a good indicator of a healthy

Birds are a good indicator of a healthy landscape. Their disappearance was my first clue that we'd done something wrong. Their reappearance was my first evidence that we were getting it right.

landscape. Their disappearance was my first clue that we'd done something wrong. Their reappearance was my first evidence that we were getting it right. If I needed any additional proof, I got it last fall when I went to a conference at a corporate park. There were acres and acres of lovely grounds, but the only birds around were a couple of crows. When I drove up my own driveway at the end of the day, flocks of robins, juncos, and cedar waxwings flew up all over.

I guess birds must have terrific eyesight to have found our speck of natural vegetation. That's all it is — a speck, an ark. And if it's an ark, it's stranded in a sea of other people's lawns. So are the butterflies that depend on the milkweed that's been cut down. And the bullfrogs that can't live along mowed shores.

And the bluebirds.

The bluebirds were like that childhood story about a boy and girl who go looking for the Bluebird of Happiness, only to find it in their own backyard. We couldn't see the bluebirds because we were looking at the land the wrong way. As though we owned not just the deed to it, but the right to its abuse. As soon as we gave back what we had taken, there they were — first a male, then one wife — and then another — and by summer's end, quite a crew of youngsters.

Every year we watch those youngsters fledge and fly away, and every spring we worry about how they're getting on, because we know they're looking for suitable real estate to raise their own families — and we don't have room for them.

You do. You grow the plants; you plan the yards; you own the land. You are allowed to harm, but you don't have to. You are equally allowed to help.

I hope you choose to.

●

Sara Stein gardens and writes in Westchester County, N.Y. In addition to having written the books *My Weeds* and *Noah's Garden* mentioned at the top of this article, Ms. Stein is now working on a habitat restoration guide for homeowners to be published by Houghton-Mifflin in 1996.

As promising as a little 'Blue Hubbard': this squash, barely a few weeks beyond pollination, would become the 32-pound centerpiece for the top-prize-winning 1994 Harvest Show entry.

photo by Ray Rogers



Ken Selody and I had finished our judging duties at the 1992 Harvest Show and were looking at the exhibits when Ken glimpsed a particularly large 'Blue Hubbard' winter squash.

"Wow, what's that?!" he cried.

I told him what I knew at the time about 'Blue Hubbard' and squashes in general, and we continued on.

A few more times before we left the Show, Ken urged, "Let's go back and see The Squash." We did, I marveling at how Big Blue had so strongly struck his fancy. For the next few weeks, "Blue Hubbard" became the buzzword to describe anything superlative: "That house is as big as a 'Blue Hubbard!'" or "If you keep eating so much pizza, you'll be bigger than a 'Blue Hubbard!'"

Fast forward to January 1994. As all gardeners do, both of us had been mulling over ideas for garden projects for the coming season, when Ken suggested we combine forces to grow the biggest 'Blue Hubbard' anyone had ever seen. "Why stop at just 'Blue Hubbard'? Why not try to grow a lot of cultivars and put together a large entry for the "Bounty by the Basket" classes at the Harvest Show?" Before anyone could say *Cucurbita pepo*, I was figuring out where to obtain seeds and calculating how many plants would fit at Atlock Flower Farm, Ken's place of business in Somerset, N.J.

Within a few weeks, I had sent off half a dozen orders for seeds, limiting the list to about 44 cultivars of winter and summer squash and pumpkins. Seed racks at local nurseries and garden centers provided a

Bigger than a 'Blue Hubbard'



by Ray Rogers

Co-exhibitors Ray Rogers and Ken Selody won Best of Show for their 4 ft. x 7 ft. Bounty Basket of squash at the Pennsylvania Horticultural Society's 1994 Harvest Show. A 'Blue Hubbard' squash at an earlier Show inspired their enthusiasm and interest; perhaps their 32-pound 'Blue Hubbard' centerpiece inspired other exhibitors to try for the 1995 Show. Here's how they put together their prize-winning exhibit.

Bigger than a 'Blue Hubbard'

photo by Ray Rogers



Within a few weeks after setting out the small plants, the squash vines were already covering much of their field at Atlock Flower Farm and were heading in all directions, including up the red-cedar teepees.

few more cultivars, bringing the total to 48.

By mid-May it was time to start the seeds for the long-season plants (the winter squash and pumpkins), so we assembled the seeds, pots, flats and stakes, carefully selecting the best, plumpest-looking seeds and planting them three to a pot (see box for more details on general culture). The shorter-season plants (the summer squash, and a few in-between types) would not get their start until late June/early July to ensure that the fruits would be in their tender prime for the Harvest Show on Sept. 17-18.

By late May, the long-season plants were ready to go into their chosen spots in the sunny field. Each cultivar went into its own carefully prepared hill, roughly 10 feet apart from its neighbors. Some of the shorter-vining ones, and the ones indicated as bush types, ended up at the edges of the patch or at the bases of teepees Ken and I

photo by Ira Beckoff



Co-exhibitor Ken Selody (left) shows off the 32-pound 'Blue Hubbard' squash in his and Ray Rogers's 4'x7' Bounty Basket entry at the 1994 Harvest Show. Selody and Rogers included 93 specimens drawn from 43 different cultivars for their 'Best of Show' exhibit.

made from red cedar (*Juniperus virginiana*) trunks we harvested from a nearby woodlot. Watering them in, I wondered if we had spaced them far enough apart.

In a few short weeks it was obvious they were going to fill up their allotted space, and then some. In fact, one of the pumpkins ('Hybrid Autumn Gold') ended up with stems almost 30 feet long, including one growing several feet up and back down a nearby young oak. The pumpkins that hung from the inner branches attracted the nursery visitors' attention. The vines that we couldn't coax in a particular direction, such as away from the neighboring sod field and path, were routinely pruned back. In less than a month from planting, the ground was almost totally obscured by large, rough leaves that helped to suppress the weeds.

By that time the big excitement had begun: flowers! At first they were all males,

but soon after the females appeared with their squash-to-be bases. In no time the bases began to swell, and the forms and colors of the mature squash revealed themselves, rapidly in some cases, and not until much later in others. Watching them grow and change became addictive, and soon we were introducing friends and visitors to their appeal.

After a few initial hand-waterings, we relied on rainfall to keep them happy. We were lucky, it rained a lot for most of the season. And maybe it was just as well we didn't water or we would have had even more and bigger squash than we did.

We planted the summer squash in July in a separate, much smaller bed, trusting they would live up to their billing as bush types; they did. Since they were close to a convenient faucet, they received ample water and soon bore flowers and fruit. By then all of the winter squash and pumpkins were approaching their mature colors and sizes.

August was the lull time, time we spent checking for bacterial wilt. We ruthlessly removed any vine that drooped in contrast to its kin to lessen the chance of spreading the disease further. Fortunately, we suffered very little wilt, even though hundreds of cucumber beetles (the carriers of wilt) flew around and hung out in the flowers. Also rather luckily, we never saw any evidence of squash vine borers, the plant-killing scourge of squash and pumpkins. I attributed our good fortune to the fact that no other squashes were growing nearby, and the field had not recently been planted with a crop of squash, so the pests had not built up to damaging levels.

By the beginning of September it was obvious we were going to have a whole lot of squash for the Show, and some of them were big. We started guessing how much some of them weighed, particularly the biggest 'Blue Hubbard' (it tipped the scales at 32 pounds the day before the Show). Others were in the 15- to 20-pound range, and one specimen of 'Jumbo Pink Banana,' although not particularly massive, was nearly three feet long.

The challenge began when it was time to create a basket to hold our brood. The weekend before the Show, we carried most of the larger specimens to a staging area to get a rough idea how big the basket should be. We settled on a 4 ft. x 7 ft. oval basket. Ken handled the construction details while I busied myself with preparing the entry list and picking some of the summer squash to store in my refrigerator. The day before the Show, Ken unveiled the basket, made of

Squash 101

Squash and pumpkins want the best of everything, and lots of it: full sun; plenty of water; deep, fertile, well-drained soil loaded with organic matter; and (except for the compact bush and semibush types) a big field to conquer. A thick, loose mulch such as straw helps keep weeds at bay until the large squash leaves spread out and shade out most weeds. All squash thrive in heat, balking during cooler late spring days and collapsing at the first touch of frost. Some of the winter squash and pumpkins need 120 days of frost-free weather to produce mature fruits, so it's a good idea to start them under cover in individual pots a few weeks before the late frost date.

Transplant carefully to avoid damaging their brittle roots. Most summer squash begin to bear in less than 60 days from setting out plants, so you can start them much later, a good strategy for avoiding the squash vine borer's depredations. The female borer moths stop laying eggs in early summer, so plants set out in late June normally escape the larvae's vine-killing jaws.

Harvest summer squash when young for best flavor, from a few days old (or less for the treat of fried squash blossoms with the baby squash still attached) to a week old. When the time comes to harvest your crop of winter squash and pumpkins (usually when the leaves look tired, and before frost is on the pumpkin), cut them from the vines with an inch or two of stem attached and put them in a warm, airy, bright place for a few days to further harden their shells, a process known as "curing." Store them in a cool place, away from direct sun, freezing temperatures, and excess humidity until ready to use; some winter squash keep for several months.

grapevines twined around one-foot lengths of vine nailed to a plywood base.

The evening before entry day at the Show, we carefully boxed the squash (swaddled in old clothes that I've saved over the years to transport plants to the Philadelphia Flower Show) and loaded

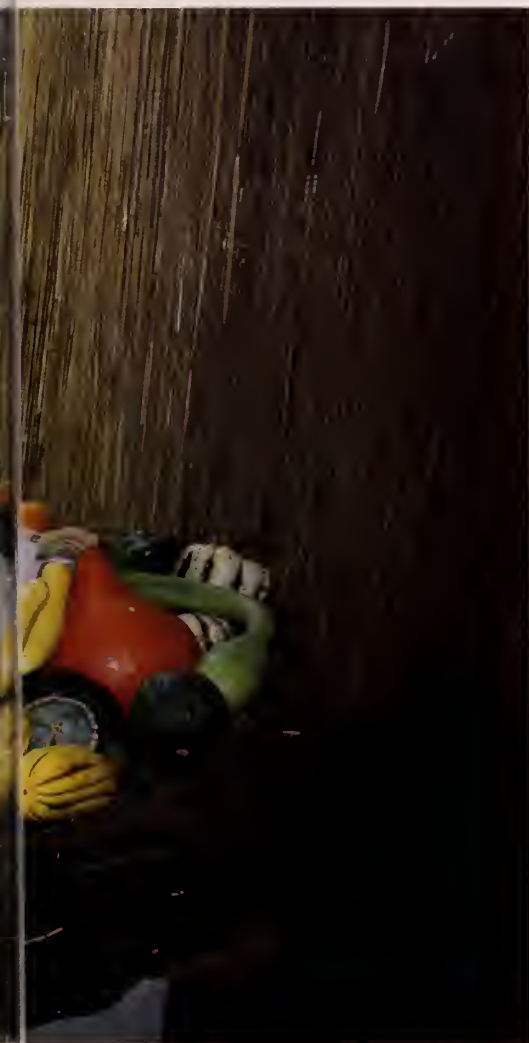




Exhibit at The 1995 Harvest Show Carnival Thyme

At the Horticulture Center
in Fairmount Park
September 16 & 17
10 AM - 5 PM
Call PHS at 215-625-8250
for an Exhibitor's Guide to
Classes and Awards

The Harvest Show has over 350 classes plus 40 classes just for children; enough to interest everyone! Enter with a friend like Ray did and take home a ribbon! Only individual entries are eligible for National Council Awards. All entries are eligible for PHS Awards.

them into Ken's truck. All that remained was to pack up the summer squash overflowing in my refrigerator, and get a few hours sleep before driving to Philadelphia from New Jersey.

When we arrived at the Show, we were led to the tent where the exhibit was to be set up. We unwrapped each squash and laid it on the nearby grass with others of its kind. We supported the basket on a couple of staging boxes, filled the base with straw, and began arranging the squash, starting with the centerpiece: the 32-pound 'Blue Hubbard.' It seemed fitting that it would be the focal point of the entire display.

After a fast-paced hour and a half, we were finished: we had arranged 93 specimens drawn from 43 different cultivars, shown as single specimens or groups of two or three. Numbered identifying labels had been attached and checked against the entry list, and the entry card filled out and placed nearby. All that was left to do was wait for the judges to make their decisions.

Well, not exactly. We also needed to make my 20 individual entries in the Show in less than an hour, and then judge some Show exhibits. By the time we were done, the squash basket had won the blue in its class and the PHS rosette for the best entry in its division. Minutes after we saw and celebrated those results, a panel of Show officials arrived and placed the Award of Horticultural Excellence (Best in Show) on the basket. Victory! Even though Ken and I didn't reach our initial goal (the 'Blue Hubbard' was not the biggest ever), we were more than pleased with the results. And later, when I found out I had also won the Virginia Brookes Pennypacker Gardener's Sweepstakes for my individual entries, I was happier than a 'Blue Hubbard' in a great big field.

Sources

Burpee, W. Atlee & Co.
300 Park Avenue
Warminster, PA 18974
1-800-888-1447

William Dam
P.O. Box 8400
279 Highway #8
Dundas, Ontario, Canada L9H-6M1

Henry Field's Seed & Nursery Co.
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Seed Savers Exchange open to
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Decorah, IA 52101

American Horticultural Society open to
7931 East Boulevard Drive members
Alexandria, VA 22308-1300

Organic Gardening "Seed Savers/Seed
33 East Minor Street Sharers" feature
Emmaus, PA 18098 in every issue

Note: most general mail-order seed companies offer squash and pumpkins, and seed racks sometimes present a surprisingly large selection. Of the above, Johnny's and Shepherd's had the largest and most diverse offerings.

The seed exchanges also offer rare and unusual cultivars. I didn't take advantage of them in 1994, but I certainly will if I grow squash again some day.

The Pick of the Crop, both to the eye and to the taste

Summer Squash

Standard zucchini: 'Ambassador' and 'Black Magic'
Golden zucchini: 'Gold Rush'
Globular zucchini: 'Roly Poly'
Patty pan (flat, scalloped): 'Sunburst'
Yellow crookneck types: 'Early Golden Crookneck' and 'Early Prolific Straightneck'

Winter Squash

Acorn and related: 'Heart of Gold,' 'Sweet Dumpling,' and 'Table Ace'
Butternut: 'Waltham Butternut'
Others: 'Blue Hubbard' (big and blue), 'Buttercup' (dark green with a prominent "belly button"), 'Delicata' (a "sweet potato" type), 'Jumbo Pink Banana' (pink and long, and supposedly banana-flavored), and 'Tivoli' (a spaghetti squash)

Pumpkins

'Hybrid Autumn Gold' (early, medium size, and prolific)
'Jack Be Little' (tiny and irresistible to most people)
'Lumina' (ghostly blue-white; super for a unique Jack-o'-lantern)
'Rouge d'Etampes' (big, scalloped, flattened, and gorgeous)

Ray Rogers is senior editor at Dorling Kindersley Publishing, Inc., in New York City. A lifelong gardener, he had little interest in growing anything other than ornamental plants until 1994, when the squash bug bit.



Autumn Color Wheel

Specimens of leaves, berries and flowers collected by the artist over a three-year period from Maine to Maryland.

painting by
Louisa Rawle Tiné

Beauty in the Neglected Season

 by Joanna McQ. Reed

Joanna Reed and artist Louisa Rawle Tiné found they share a love for autumn, which author Allen Lacy calls "the neglected season." Joanna and Louisa collaborate here to highlight some favorite plants that shine in autumn.

When I first saw Louisa Rawle Tiné's exquisite botanical paintings I was entranced. They are so accurate, so beautifully lifelike, so studied yet fresh and free. Her meticulous attention to detail draws one's eyes in for closer observation, yet each work retains the spontaneity, the purity of a recently picked branch, flower or fruit.

I wish that gardeners and nongardeners, everyone I knew, could share in my pleasure. As I pored over

one painting after another, we talked plants. We soon discovered a mutual love of the fall season. We extolled favorite fruits, nuts, berries, textures, forms and colors. An article, this article, seemed a way to share, in a small part, Louisa's talent and to voice our mutual enthusiasm for the season, fall.

The words that accompany her paintings here, words meant as background for the art, should be read in their entirety. Like her paintings, her voice is to the point, in its clarity is beauty.



Aronia arbutifolia, chokeberry.



painting and photo by
Louisa Rawle Tiné

Chokeberry in summer.

Louisa Rawle Tiné writes: "In the fall of 1989 I spotted a beautiful branch of red berries and brought it home to paint its portrait. Little did I know what it would lead to! Six years and nearly 50 paintings later, my eyes and vision are fine-tuned to the amazing variety of berries that surround us in woodland, meadow, marsh, garden and vacant lot. From berries, my enthusiasm and paint brush have now embraced nuts, fruits, seed heads, flowers and leaves. The abundance of textures, shapes and colors is spectacular. From the flamboyant fiery display of the trees to the tiniest porcelain blue berry, the vast array of autumn plants covers the full spectrum as you can see at a glance from my painting of the autumn color wheel.

"In his book, *The Garden in Autumn*,

Allen Lacy's first chapter is titled, 'The Neglected Season' and I quite agree. Autumn is a glorious time in the garden and woodlands in much of the United States, not so much heat and few flies. So much of our garden heritage and literature comes from England where fall is not a particularly pleasant time of year. Native American plants are attracting a tremendous amount of interest and growing appreciation right now. We are also beginning to amass a good body of American garden writing and to respect our own writers. I think the time is ripe for us to look and to listen to our writers, our plants, and our unique landscapes, especially at this spectacular time of the year.

"I write about the plants that I have painted to share with readers my artistic vision and the wealth of information

that I have gathered. I have been growing many of these plants and watching and observing many others up and down the East Coast. The majority of the plants that I have painted are American natives, some are aliens that have become naturalized and some are underutilized plants that I think are beautiful and should be grown more widely.

"As I became more engrossed with this project, I have learned to stretch autumn over five months. When the goldenrods and joe pye weeds bloom in South Salem, N.Y., it is my signal to start. I then go north to Maine where the season is three weeks earlier, home again and then as autumn progresses into the Bronx, then to New Jersey, Pennsylvania, Delaware and Maryland, where it is not uncommon not to have had frost by Thanksgiving."



Ilex glabra.

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On several occasions while enjoying the vivid colors of a fall foliage trip through the New England states, I was puzzled that my companions seemed oblivious that this seasonal, undisputedly glorious phenomenon takes place also in the Delaware Valley and their own backyards.

Take for example, *Aronia arbutifolia*, red chokeberry, showier than its relative, *Aronia melanocarpa*, with blue-black fruit. This native multi-stemmed leggy plant grows readily in sun or shade, wet or dry ground. In sun its suckering habit will result in a dense thicket, heavy with long-lasting red fruit (actually a pome, little apple, but usually referred to as a berry). In shade single, less showy, widely spaced stalks are more characteristic. Its habit of concentrated foliage on the upper half or two-thirds of the stems make it a fine candidate for planting in large borders among late asters, boltonias or *Lespedeza thunbergii*. An outstanding cultivar is *Aronia arbutifolia* 'Brilliantissima' whose rich crimson foliage is memorable. Both grow from four to six feet tall. In cultivation since 1700, it grows in the wild from Massachusetts to Florida and west to Texas.

The clear yellow leaves of *Lindera benzoin* in late, late autumn attract one's attention to the rampant aroma, in all parts of this understory shrub. Once used as a



Ilex glabra 'Densa' in late spring.

painting by
Louisa Rawle Tine
photo by
Larry Albee



Ilex verticillata, winterberry.

Ilex verticillata 'Winter Red' (early fall), a Pennsylvania Horticultural Society Gold Medal Plant Award winner.

painting by
Louisa Rawle Tine

photo by
Larry Albee



substitute for unavailable spices it acquired the common name spicebush. The early yellow flowers similar to those of *Cornus mas* and *Cornus officinalis*, are a welcome herald to spring, but its glistening red fruit in late August into September (again similar to both *Cornus*) are too popular with birds to be counted on for show. The golden foliage carpeting bare branched trees and shrubs make a cheerful goodbye to the gardening season. Native from Maine to Ontario, south to Florida and west to Texas.

*Ilex glabra** or inkberry grows six to eight feet high spreading into clumps of equal breadth. The lustrous green leaves are persistent until the strong March winds blow. Soon the new foliage takes over, making the shrub appear evergreen. Normally the fruits are dark blue, turning black at maturity. In 1955 Frank W. Wood discovered a white fruiting form in Florida. It is now in the trade as *Ilex glabra* 'Ivory Queen'; the fruits, at first, have a delightful pink tinge turning white as they age, remaining on the plant through the winter. For limited spaces there is a form *Ilex glabra* 'Compacta.' Native from Nova

Scotia to Florida and west to Mississippi, it was introduced to cultivation in 1759.

Both *Ilex verticillata** and the similar *Ilex laevigata* are useful and attractive landscape plants. Since they, by nature, form clumps or thickets it is easy to incorporate the requisite male for pollination. The brilliant red fruits normally persist into March adding vitality and punch to the fall and winter scene. Both are upright branching shrubs, through selection and breeding programs by nurseries and the National Arboretum; cultivars ranging from four feet to 12 feet are readily available. The foliage of the *Ilex laevigata* turns a glorious yellow, whereas the leaves of *Ilex verticillata* tend to be shed at frost. Only rarely do migrating birds on their way south devour the fruit. I recollect, on two such occasions, we had had October snowstorms during the night. By noon both the fruit and the birds were gone. Native to Nova Scotia and Western Ontario, south to

Florida and Missouri, it was introduced in 1736.

Rosa palustris, the swamp rose, at one time was considered the same as *Rosa carolina*, the pasture rose. Their flowers and growth are similar. *Rosa palustris* inhabits swampy marshes and wet places, growing in clusters or thickets of purple prickly canes two and one-half to six feet tall. The groups of small five-petalled flowers are forerunners to the lustrous persistent red hips. The glowing orangy-red leaf color in fall makes a wonderful statement. A rangy suckering growth habit precludes its use in garden beds and borders; it is best planted in wilder natural areas. Introduced, I believe, by Pennsylvanian Humphrey Marshall in 1826, it is native from Maine to Florida and west to Texas.

Viburnum cassinoides, withe-rod or wild raisin is native to moist rocky woodlands. The white June bloom is upstaged by its showier Asian relative *Viburnum dilatatum* with larger, whiter, flower clusters and bright red fruit. The subtlety of *Viburnum cassinoides* is for the connoisseur. In late summer pale green fruits have formed

*Consider also these Pennsylvania Horticultural Society Gold Medal Plant Award winners: *Ilex glabra* 'Densa,' *Ilex* 'Harvest Red,' *Ilex verticillata* 'Winter Red,' and *Ilex* 'Sparkleberry.'

turning to pink to blue and eventually to black, with all the colors in each cluster simultaneously remaining for several weeks. When dry the fruits remind me of the raisins of my youth, thus the common name, before the hybridists wrought the wonders of improved grape culture with today's larger seedless raisins. The final curtain call for *Viburnum cassinoides*, in mauve foliage, is when the trees towering above are bare-branched. Native from Newfoundland, south to Georgia and west to Minnesota, it was introduced to cultivation as early as 1761.

Since the glorious reds of sourwood and maple, yellows of tulip poplar, ash and hickory, silver glow of beech and the darker purplish reds of sweet gum and oaks keep our eyes looking upward, I feel compelled to comment on at least one of the many wildflowers so welcome in spring and ignored in fall.

Smilacina racemosa, false Solomon's Seal, herbaceous, and by its stature ranked a lesser plant, is a treasure. A good plant from early spring to fall when its plumes of luscious rosy-red fruit are worthy of notice. Luscious also to deer. Some years the fruit is eaten, leaving the foliage a golden vegetative wave. Some years the foliage too is eaten, in fact some years the greedy predators browse on the plant as it emerges from the ground in spring. Although for me personally the resultant gap in the landscape remains a sad gap until the following April when this treasure has another go at life and beauty, the increased size of the clumps indicate that the *Smilacina* has put its energy into root production during the interim.

There is no dearth of beautiful, wonderful plants in our gardens and in the wild during the "neglected season." Louisa and I are not alone in our appreciation of the flamboyantly bright and fleetingly subtle color changes nature provides. We, however, both feel the more said, the more written, the wider the circle of appreciators will grow. Very few of us have the talent to record our joy and delight as Louisa Rawle Tiné does in her paintings (her students undoubtedly aspire to do so), but we can find room in our usually overflowing garden to add new "stars" and time to observe more closely what our dependable stalwarts are up to before winter sets in.



Smilacina racemosa, false Solomon's seal.



False Solomon's seal in summer.

Joanna Reed is a frequent contributor to *Green Scene*; her last article in the July '95 issue celebrated 50 years of gardening at Longview Farm in Malvern, Pa.

Louisa Rawle Tiné is a free lance artist, who teaches botanical illustration at the New York Botanic Garden and at the Pennsylvania Horticultural Society. She is trained as both a commercial and fine artist. She now lives in South Salem, outside of Manhattan; she grew up in Bryn Mawr, and while she lived there she and her husband exhibited in the Miniature Settings Class at the Philadelphia Flower Show for 15 years.

More reading about Autumn Gardens

The Garden in Autumn, Allen Lacy,
Atlantic Monthly Press, N.Y., 1990.

(This book is available to members
through the Pennsylvania Horticultural
Society Library.)



In late fall John Coyle fills a garden rich with Jersey shore "beach ingredients" — seaweed, eel grass, reeds and dead crabs.

Fall—at the



by Gretchen F. Coyle

and replenish it. Be sure to shake any leftover soil from pots and plants back into your garden.

I pull up all leftover vegetables and dump them in our compost pile. To guard against extreme dampness and potential rot, clean all fences and trellises of unwanted vegetable vines. Wash all stakes, dividers and labels and store in a dry spot. Empty window boxes or they'll rot.

There's a great debate on whether to till an empty seashore garden in the fall or in the spring. I believe the garden should be tilled in the fall to benefit from the natural ingredients indigenous to our area. I put in varying amounts of leaves (scarce at the shore), compost, vegetable and fruit scraps, and grass clippings not treated with pesticides. My main ingredient is ocean or bay "junk" that has been washed up: partially broken down eel grass, seaweed, dead crabs, an occasional fish, salt hay and who knows what else. Most of the ingredients except the eel grass should be completely broken down by spring. Then all you have to do is go over your garden lightly and you are ready to plant. If you till in the spring use these natural ingredients more sparingly.

Pine trees have been planted in abundance along the Jersey shore over the past 30 years. (During the '50s to combat the mosquito problem native shrubs were cut down and the lots filled with gravel. Pine trees that grew well in gravel and that would add height to barren areas soon began to sprout everywhere.) If your garden is inundated with pine needles that have blown into it, spread lime to neutralize the acidifying effects of the needles.

Salt water submersion can be a major problem not only during the fall hurricane season, but all year long. Plants submerged under salt water for 24 hours or more will die. Gardens that are under water for 24 hours or less can usually be brought back by the following method: Start sprinklers running as soon as the water recedes. Allow the water to percolate through your soil for at least 12 hours in each spot thus leeching all the excess salt through. Clip back whatever begins to turn dark or dry in a week or so. Then repeat the 12-hour sprinkler treatment. This method works

Fall is a beautiful time at the Jersey shore. The summer crowds have gone, the air and water are warm, the nights are mild, and bird watching is at its height. Some people enjoy a relaxing sail or a bit of fishing while others walk the beach. In fall a seashore gardener enjoys the remaining crops of squash, pumpkins, gourds and a few perennials, but mainly it's time to prepare the garden for a long "R&R" (rejuvenation and rest).

Generally, I don't have much luck with the usual fall vegetable crops of spinach, broccoli and lettuce. The summer seems to be too warm for the seedlings to get a decent start. When these crops need some

crisp weather our shore days and nights are still too warm due to the water temperatures at 60°. A big problem is wind: fall winds can dry and flatten everything in short order.

By fall our annuals tend to get leggy. Salt spray, which can literally be blown for two blocks, shrivels the leaves. So the best thing to do is pull up all annuals and get ready for next spring. I empty all my clay pots, scrub them with a Brillo pad, and stack them on a shelf in the garage. If your annuals are spread about your yard simply pull them up and level off the area. Basically no soil exists at the shore, only sand. Since soil must be trucked in it's imperative to save

Jersey Shore

Prepare Your Garden for Spring



Above: John harvests natural beach wash-up from the bay beach. **Below:** A dried seashore arrangement of sedum, hydrangea and bay heather.

well for vegetables, annuals and perennials. It may not work so well, however, for deep-rooted trees and shrubs since the water table may remain high. The main objective is to get rid of the excess salt that has blown or washed into your yard. Even salt-tolerant native species such as hollies, bayberry, beach plums, rugosa roses and olives are

vulnerable if they stand in salt water for an extended period of time.

It's a good idea to cut back most perennials in late fall. My husband and I do it in a rather unorthodox way: we weedwack. Weedwacking creates a very thin layer of mulch for winter protection against salt and wind. We take our herb and perennial

gardens down to 8 inches. Snow does not last on the coast so the harsh elements can really take their toll. We plant our spring-blooming bulbs and perennials in the fall.

I try to make a blanket using the beach mixture accumulated from high tide around the roots of some of my tender plants such as roses, one- to three-year-old fruit trees, berries and sensitive herbs. You can either put this mixture on as it is, the salt will leech through after a few rains, or leave it out in the rain first. Come spring spread these natural ingredients around in your garden again. Pine branches also work well as a mulch except that you have to get rid of them.

In fall, I spray my fruit and pine trees with a dormant oil spray. The damp shore atmosphere leaves fruit trees vulnerable to all sorts of problems. Some pine trees on Long Beach Island are infected with a strange blight that no one can identify.

Late fall and winter are the best times to get out your heavy-duty clippers and go to work: clip back bayberry bushes, blueberries, pine trees, rugosa roses, hydrangeas, raspberries and anything that looks the least bit overgrown. You will be rewarded next summer with bushy, healthy specimens.

Finally, I like to make a few dried decorations to spark up the house. I experiment with cut reeds, dried hydrangea and sedum flowers, bittersweet, bayberry branches loaded with gray berries and bay heather for interesting arrangements.

Rejuvenation of the soil and some basic maintenance before the harsh winter begins ensures a successful spring and summer in the garden. Living at the Jersey shore presents a challenge for gardeners, but the rewards more than outweigh the problems.

Gretchen Coyle developed her love of gardening as a child helping her parents with their Bryn Mawr (Pa.) wild garden. She now gardens at their bayfront home "Little Beach Farm" in Beach Haven, N.J. Each year she, along with husband John, cultivates about 40 types of vegetables, annual and perennial herbs, old-time and native seashore flowers and shrubs, and a potpourri of summer annuals.



FLOWER GARDENING



by Art Wolk

Once October and November's warm days are behind us and the mildest days we can hope for are in the 50s, we can best describe weather by the three 'd's': dull, dank and dreary. Gardeners' mental states more than likely correlate with that description. We look out at what landscape architects call the "bones" of our gardens, and they look about as inviting as the bones left after a barbecue dinner.

What's missing is the color of flowers. Europeans have the good sense to make cut flowers a part of their weekly budget. They know that in winter the soul must be fed as well as the stomach. But in the United States it usually takes a birthday or an anniversary to get us into a flower shop.

As gardeners we long to see, smell, and touch our own flowers. We yearn to push a trowel into the earth or to remove a weed. Alas, the frozen ground robs us even of these pleasures.

But for me, the fall begins the gardening year and my domain simply shifts from open ground to cold frames. Imagine scraping wet snow from these "miniature greenhouses" to discover the delicate beauty of English daisies and the intoxicatingly sweet scent of pansies and violas. In the midst of all the winter bleakness, a sensory extravaganza.

Cold frames are a relatively recent horticultural tool. It wasn't until the end of the 19th century, when low-cost glass was available, that glass greenhouses and cold frames arrived on the gardening scene. Until then, a "greenhouse" was actually a typical looking dwelling, with windows and a heat source, into which tender potted plants were moved in the winter. The first cold frames were portable bell-shaped glass units called cloches. Eventually, garden structures with hinged window sashes surrounded by wood appeared. Over the years there has been an endless variety of these structures. And with the coming of plastic and tempered glass, the risk of shredding the underlying plants has decreased.

Typically cold frames are used only to extend the growing season in the fall and spring. But there are a host of plants that will continue growing all winter in cold frames. I've found that any plant that blooms by mid-June will thrive in the cool soil conditions inside a winter cold frame. In addition, cold frames reduce by half the time needed to produce a blooming perennial. Few of us want to use up the time and

space for an entire summer to produce a plant that won't bloom until the second year. But many plants can be started from seed in September, planted in a cold frame, and placed in the garden so that they bloom before their first birthday. A few examples include coreopsis, delphiniums, foxgloves, ox-eye daisies, poppies, hollyhocks, and lupines.

What really gets me through a winter are the plants that start blooming in cold frames in December and continue all

Within two months of growth in a cold frame, your pansy plants will be large enough to start forming flowers. Most years, I have pansies by the end of December.

winter. These include pansies, violas and English daisies. Virtually all plants that enjoy the cool soil conditions of spring will revel in a winter cold frame. Indeed, one can produce cool season plants much larger than those usually grown in the United States. Haven't we all longed to have the huge delphinium and other spring-blooming plants common in England? What we don't have is the long, cool growing season that the British enjoy. But a winter cold frame gives you exactly that. These plants will continue to grow and flourish except in the harshest winter weather. By the time such plants are placed in the garden, they are stocky enough to produce larger blooms than you've ever produced. In effect, you've given them an English spring.

My first cold frame was a 4 ft. x 4 ft. unit built in the fall of 1976. I put about 35 seedlings of 'Green Ice' lettuce into it. Situated in my father's sunny back yard, those seedlings made it through one of the coldest winters ever experienced on the East coast. A car headlight provided the only supplemental heat on the coldest, below zero nights. By March, and in spite of the cold, we had 35 heads of lettuce to harvest.

Within two years I had my own home and several different cold frames, none larger than 8 ft. x 4 ft. Most of them are constructed of exterior-grade plywood and treated with the wood preservative copper naphthenate (available at home centers under the name "Below Ground"). For windows, I use six-mil plastic stapled to a homemade sash.

Over the years, I've found many cold season uses for my frames. Among them I would include:

- a place to grow cool season salad greens;
- an ideal place to plunge potted bulbs for indoor winter forcing;
- a site for winter flower gardening using violas, pansies or English daisies;
- the perfect place to mature spring-blooming perennials and biennials started from seed in September;
- a reliable retreat for less hardy perennials; and
- a good winter home for bonsais, dwarf evergreens and topiaries.

Finding a site for your cold frame

Once you've decided to build or buy your first cold frame, determine the best site. Typically, this would be the sunniest winter location you can find. The sun is much lower on the horizon in the winter than in the summer. If you're determining a site in the summer, take into account the lower angle of the winter sun. An evergreen that casts no shadow over one site in the summer may totally shade it in the winter.

After you've selected a location, point the low end of the cold frame toward due south. To determine the direction of true south (not magnetic south), place a stick in the ground so that it stands perfectly upright. At exactly 12:00 p.m. Eastern Standard Time, regardless of the day of the year, put another stick in the ground at the far point of the shadow cast by the first stick. The line extended from the second stick to the first points exactly due south.

Next, be sure that the side walls of your cold frame are parallel to that line. With the low or front end of the frame at the southern end, your cold frame can collect maximum light and heat.

Just as important as the site is the soil line. If the soil inside your frame is lower than the surrounding soil, you'll create a quagmire. Be certain that water can drain away from your chosen site. If necessary, add more soil to raise the soil level inside your frame.

Starting your winter flower garden

Four to six weeks before the first freeze in your area start the seeds of the plants you intend for your cold frame. I use a soilless mix (either Pro-Mix BX or Pro-Mix PGX) to start all my seeds. If you're growing pansies or violas, be aware that these seeds

OUTDOORS IN WINTER

photo by Art Wolk



photo by Art Wolk



Above left: Pansies and English daisies share a cold frame in mid-winter. **Above right:** Glass cloches of the 19th century were the first cold frames. **Below:** Pansies, poppies, ox-eye daisies, delphinium and foxgloves started from seed in September, grown in cold frames, and transplanted to make drifts of color in spring.



will not germinate well if exposed to light during germination. I not only cover the seeds with about 1/16th of an inch of growing media, but also cover the seed flat with aluminum foil to exclude light. Using this technique, the seeds will germinate within 5-7 days. Check the flat every day, so you'll know when to take off the foil for the emerging seedlings.

For English daisies the opposite is true. These seeds actually need light to begin germinating. I spread the seeds over flats filled with 2-3 in. of moistened soil mix, and then lightly spray with water to increase contact between soil and seeds. After covering the flats with polyethylene, I place them under fluorescent lights to stimulate germination. Germination occurs after 3-5 days.

Within 10-14 days after germination I give each seedling its own spot in a six-pack. Each flat holds eight six-packs, or 48 plants. Two flats, or 96 plants will fit under one 48-in., two-bulb light fixture, an ideal spot to grow seedlings. By the time the first frost occurs, your seedlings will have at least one pair of true leaves and will be ready to move to their winter home.

The soil in your cold frame should be cultivated and be weed free. I always add organic matter every fall, usually summer-ripened compost. If you haven't had your soil tested for pH and nutrients in the past 12 months, do it in the summer. Unless you're one of those mystical people who can tell soil pH and nutrient deficiency by leaf color and the weeds you have, you're only guessing which soil amendments to add. For a small fee (usually under \$10), your county agricultural extension agent will have your soil tested and recommend corrective measures.

After the soil in your cold frame is prepared and your seedlings are ready, begin transplanting outdoors. I plant pansies 9 in. apart and English daisies, ox-eye daisies, and coreopsis about 7-8 in. apart. Lupines, delphiniums, foxgloves, hollyhocks, and poppies can all be about 9-12 in. apart.

Maintaining your cold frame garden

No outdoor garden is easier to maintain than a cold frame garden. Watering is kept to a minimum. Basically a cold frame is just a large terrarium. Like a terrarium, the water evaporates from the soil and leaves, condenses on the container and returns to the soil. I've never had to water more than once during any winter. In fact, I've found that you're better off keeping the soil barely moist to prevent fungal disease. I've only ever lost a plant in a cold frame when I

watered too much.

Pest problems are minimal during winter cold frame gardening. The air and soil temperatures are too cold for the usual garden marauders. Invariably my plant leaves are pristine by the time I transplant them into the garden in early spring.

If it occasionally warms up to 55° or higher in the late fall or winter, raise the frames' lids so that the plants don't experience heat stress. From December through February there usually aren't more than 7-10 days that the lids have to be propped open. The best way to gauge the heat your cold frame maintains is by using a maximum thermometer. Place it against the **shaded** inside front wall. If your frame is usually 20° warmer than the maximum outside temperature on sunny days, then you'll need to provide venting when the outside temperature rises above 50°. Remember, these types of plants grow best at temperatures of 65-70°.

A few weeds may grow in your frames. My unwanted visitors are chickweed and hairy bittercress. But, with the dearth of winter garden activity, I actually look forward to evicting these cold-hardy weeds; usually only one weeding is necessary.

Within two months of growth in a cold frame, your pansy plants will be large enough to start forming flowers. Most years, I have pansies by the end of December. What a thrill it is, after the first light dusting of snow, to scrape off the lid of a cold frame and be cheered by pansies with their sweet scent and cat-like faces. I usually pick some every few days.

During the coldest part of the winter, the soil in your frame may freeze. At this time, plant leaves may curl and flowers will lay flat on the soil. But as soon as the soil in your frame thaws, your plants will look great again.

Potted bulbs

Potted spring-blooming bulbs can be forced into bloom after about 12 weeks of cold treatment. Bulbs need temperatures of 40-50° not only to form roots, but to start flower stem extension.

Before I had a cold frame, I would bury potted bulbs in a trench, then dig up the pots at varying times in the winter. That can be difficult during severe weather, especially if the mulch you're using blows away and the ground freezes hard. The whole process can be a pot- and back-breaking activity.

Cold frames simplify the whole process. Until the winter of 1993-4, I would place the pots in a frame and put soil around each pot and a mulch on top. But that winter was

so cold, I had to use my wife's hair dryer to soften the frozen soil in the cold frame to free the pots.

To prepare for the winter of 1994-5, I decided to use R5 styrofoam insulation on the walls and bottom of my bulb frames. I also moved away from using soil around each pot and instead used mulch (leaves or pine needles) under, around, and over each pot. The mulch acts as additional insulation. If some bulbs grow too fast, I use a shaded cold frame and crushed ice to hold certain pots back. This system worked very well this year. There were no broken pots and 19 of my bulb entries at the 1995 Philadelphia Flower Show won blue ribbons.

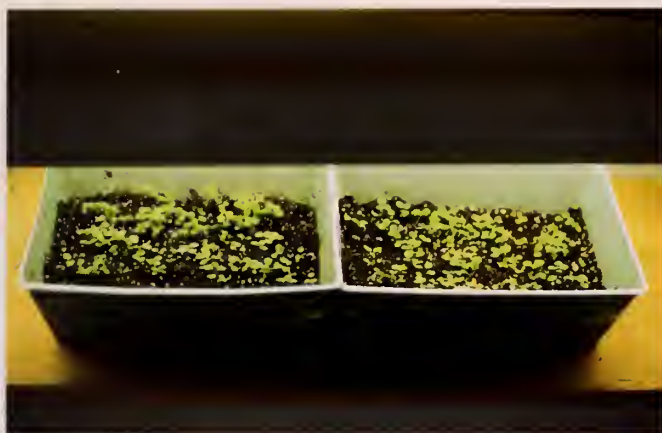
When using this technique, be sure to poke holes in the insulation under the pots for adequate drainage. Also, make sure that the soil under the pots is above the level of the soil outside the cold frame. I didn't follow this rule last winter, and one of my bulb frames flooded after a storm. In the midst of one of my Flower Show panics, I had to make a trench outside the frame to let the water drain out.

One last warning: I've heard enough horror stories of mice and voles destroying potted bulbs in cold frames to use a precaution. I bury hardware cloth, which is really just heavy screening, up to 12 in. below the walls of the frame to keep out the marauders, and I've never had a problem.

Bonsais and other potted plants

Bonsais, dwarf and topiary evergreens, and other potted plants benefit from the protected winter environment of a cold frame. Some of these plants can be rather large, approaching 3 ft. tall. To accommodate them, I built an 8 ft. x 4 ft. cold frame out of 1 in. x 12 in. pressure-treated lumber and R5 styrofoam insulation. The frame is 4 ft. tall at the northern end and 2½ ft. tall at the southern end.

To keep winter injury to a minimum, it's essential to cover the windows with an opaque material, like wood, so no light gets in. What really turns needles brown in the winter is sunlight when the root zone is frozen. The plants can't take up water to replace the moisture transpired from the leaves. Total darkness solves the problem. I put the plants in this darkened frame at the end of November. By the middle of March, I start acclimating the plants to light. I used this procedure last winter, and for the first time I detected no winter injury. I even removed dwarf evergreens from these frames the night before entry in the Flower Show. They needed minimal grooming and were fine in the relatively low-light conditions at the Show.



Above left: Pansy seedling, under fluorescent lights, at the proper stage for transplant to six-packs. **Above right:** Foxgloves, poppies, and coreopsis (top to bottom) sharing a cold frame. **Below left:** Styrofoam insulates the bulb frame. Hardware cloth (screening) on side walls keeps out rodents. **Below right:** Bonsais and dwarf evergreens benefit from the protection of insulated 4-ft.-high cold frame in winter.

Early springtime activities

In late March the outdoor conditions are usually mild enough for transplanting your pansies and other plants. They transplant very well and begin growing again within a week. In some cases I grow my cold frame plants in pots all winter. The pots are plunged to their rims in the cold frame's soil. In March, transplanting is easy. In some years, these potted plants have been entered in the Philadelphia Flower Show

and done well. As I said before, the leaves are usually pristine and little primping is needed to get them passed at the Show.

Once all the plants have been removed from my cold frames, it's time to get them ready for other springtime uses. At this stage of the season, your cold frames are really put into "overdrive" to develop summertime plants. Once summer arrives, each of my eight cold frames are used for a variety of purposes.

But that's another story, which I'll relate in the March issue of *Green Scene*.

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Art Wolk lives in Voorhees, New Jersey, and has been exhibiting at the Pennsylvania Horticultural Society's Philadelphia Flower Show since 1979. In 1995 he won the Grand Sweepstakes Award in the Competitive classes. He has lectured widely on a variety of garden topics, and has appeared twice on the Discovery Channel. He is the president of the South Jersey Horticultural Society.

Pretty



Happily, Mother Nature helped our large suburban community garden in an unanticipated way. For two years we'd been overrun with groundhogs and especially rabbits. One spring evening one of the gardeners counted 19 hungry Peter Rabbit-types around our gardening area. We developed a lot of empathy for Mr. McGregor as our lovingly nurtured peas, lettuce and cole crops were decimated.

So we fenced frantically, higher and higher, as the animals became more and more enamored with our produce. The groundhogs especially seemed to regard these fences as an intelligence test. The ones who figured out how to get under or over the fences were the winners, the prize being a delicious vegetable dinner. Once the groundhogs managed to dig under the fence, the rabbits considered this opening an expressway to their share of the reward.

Then mysteriously the rabbit and groundhog population began to decline within a few weeks' time, and one or more red fox (*Vulpes fulva*) sightings were reported. Red foxes come in many colors but will always have a white tip at the end of the tail, distinguishing them from gray foxes.

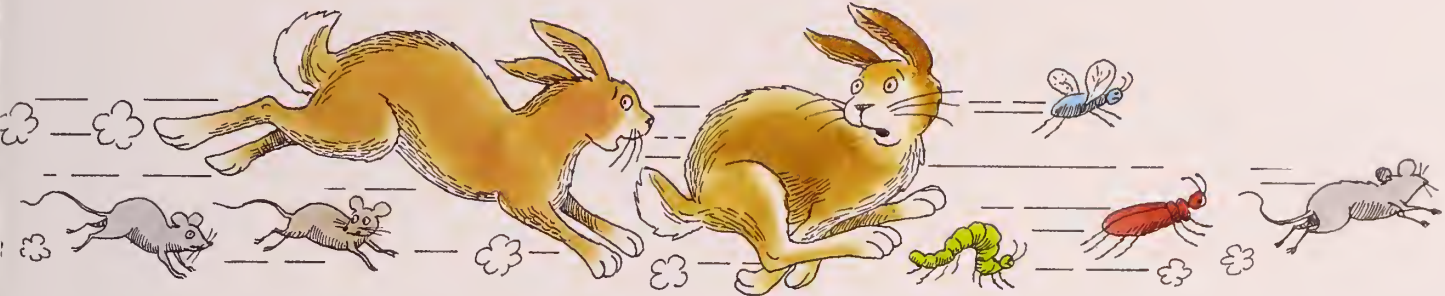
One very-early-morning gardener regularly noticed a fox who seemed to like to loll about the garden area, at a respectful distance, casually munching on what appeared to be parts of rabbits. Fox and gardener, going about their business, kept an eye on each other, but no encounter ever occurred. The gardeners expressed concern about the fox but after some research we learned that foxes rarely are a threat, especially as we don't have hen houses.

Rabies is usually the most cause for anxiety. According to J. Thomas Wampler, II, laboratory technician supervisor at the Pennsylvania Department of Agriculture Laboratory at Summerdale, Pennsylvania,

Foxy

A fox benefits a suburban community garden

 by Elise Payne



the incidence of rabies in foxes is diminishing as a serious problem, although any unusual behavior, especially tame actions or abnormal aggressive actions should be cause for extreme caution. Wampler relates that the most common rabies is now working its way up from the South and is called officially, the southern raccoon strain. It affects primarily skunks and raccoons. The fox population was especially affected in Pennsylvania in 1986 and 1990, with the most healthy and resistant individuals of the species being the survivors. In 1994 the number of rabid foxes reported was consistently low when compared with recent years.

Reynard is what red foxes are commonly called in England, and this is what we named our fox. After a few weeks Reynard could routinely be seen sitting proudly, posing as if for a nature magazine, atop a pile of stone rubble. He seemed curious and bemused by our ceaseless hoeing, weed pulling, and perspiring in the early morning bright, humid sun.

We gardeners soon began to realize the field mice population was also declining. These mice especially liked my nice red succulent beets. How disappointing it was to pull those tasty beet greens, anticipating double the gastronomic pleasure from one plant, the roots as well as the tops, to find only one-third of the root bulb remaining. Reynard, who especially favors field mice, apparently ate many of them and greatly increased my beet yield to the disgust of our sons, who cheered on the mice!

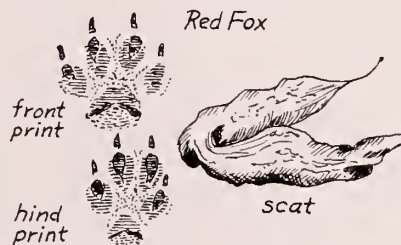
Reynard was thrilling to watch as he stalked his prey, his long, foxy, pointed ears rotating to detect a mouse squeak up to 100 yards away. Foxes have been reported to leap as much as 16 ft. through the air to snag a mouse, but I have never seen him jump more than a few feet.

Reynard, a male (dog fox), was joined in

You would be fortunate if you had a red fox in your area, garden or landscape.

early summer by a female fox (vixen) and two kits, who on rare occasions could be seen streaking across open ground or the road, red brush (tail) streaming out behind.

This family explained why the groundhog, mouse and rabbit population was greatly diminished. Ideally it takes a lot of good fresh meat to raise a family, although



foxes will eat quite a varied diet depending on time of year and availability.

Foxes also benefit the garden in another way; they eat a quantity of grasshoppers, crickets and beetles as evidenced by the insect wings left in the garden.

A good indicator that a fox might be in your area is the distinctive scat, or droppings. It may consist of traces of bones, seeds of berries and fruit, and especially feathers and hair. The cylindrical shape often terminates with a tapered, twisted end. Do not touch scats as they may contain parasites or their eggs.

Foxes will learn to adjust to the presence of people if we respect the fox and its few needs. A friend, Bob Slater, had an initially unnerving fox encounter. Although he is not a gardener, Bob respects Mother Nature and her bounty.

A fox suddenly appeared one spring and started to follow threateningly Bob and his dog as they took their daily walk through the park in the suburbs. The fox would approach, charge the dog to scare it away, which alarmed Bob. Then the fox would follow the dog at a consistently close distance until the dog left the area. After several days of this, the fox gradually realized the dog was not a great threat and began to follow it at increasingly greater distances, just to let the dog know it was being monitored.

When a few weeks later kits were seen, the fox's protectiveness was explained. Man, dog and the clever fox respected each other's space and continued to coexist peacefully, a lesson well learned and a good example for all!

You would be fortunate if you had a red fox in your area, garden or landscape. Foxes are deserving of respect for their place in the balance of Nature. What better beautiful, organic way to control rodents and even eliminate a few insects. Please give Reynard your consideration.

*What is man without the beasts?
If all the beasts were gone, men would die
from great loneliness of spirit.
For whatever happens to the beasts, soon
happens to man.
All things are connected.*

Chief Seattle (Duwamish tribe)

Elise Payne is a member of Garden Club of Bala Cynwyd and the Pennsylvania Horticultural Society. She is active with the Philadelphia Flower Show and the Harvest Show. She also volunteers on the PHS Hotline, on occasion answering questions about animals as well as plants.

SPINACH



by Walter Chandoha



Spinach, a hardy vegetable that thrives in the coolness of spring and fall, tolerates frost, can live through cold, even freezing weather but it can't stand heat. It's so hardy, that in most parts of the United States it can be planted as soon as the soil thaws in the spring. Fall plantings go dormant in mid-winter, resume growth early next spring and are ready for harvesting by the end of April.

Planting

Most of my vegetable garden is laid out in raised rows about 4 ft. wide and of varying lengths. The spinach rows are about 10 ft. long. I cover one of these 4x10-foot beds with about an inch of peat moss, 2-3 inches of compost and/or leaf mold, two one-pound cans of wood ashes and a can of a slow-acting fertilizer called Cricket Krap — honest, that's the name. It's a fertilizer made from the manure of crickets. All this good stuff is blended with the soil beneath, to shovel depth, about 10 inches. The bed is then raked smooth and it's ready for planting. I sow the seeds in 6 in.-wide parallel rows spaced about a foot apart. Next the seeds are barely covered with fine, sifted compost. I tamp the rows with a hoe blade to bring the seeds into contact with the soil, then water the rows.

To speed germination I lay a sheet of clear corrugated fiberglass on top of the bed and weigh it down with a few stones to keep it in place. With the sun's heat trapped under the fiberglass, the seeds quickly germinate in three to five days. When most of the seeds have sprouted I remove the fiberglass.

Thinning

Planted in 6-in.-wide bands the seedlings are crowded. If I have time and if I have room in the garden, I dig up seedlings by the trowelful and transplant them in rows in another part of the garden spacing the plants about 6 in. apart. These spinach transplants interplant well between widely spaced brassicas like cabbage and broccoli seedlings. I also plant them between rows of shallots, garlic and onions. By the time the alliums or brassicas need their allocated space the spinach will have been harvested and eaten. If I don't have the time to transplant spinach seedlings, I thin with scissors and use the tiny leaves in salads. Using scissors to thin rather than pulling out the seedlings by their roots leaves the remaining plant's roots undisturbed. Stressing plants' roots sets growth back a week or more.

Fall planting

I like to start spinach in the fall well before the onset of freezing weather to give the plants lots of time to develop a heavy root system. I figure if the plants have

ample roots before the soil freezes they get a tenacious hold on the soil and are less likely to be heaved during winter when the garden alternately freezes and thaws. Cold doesn't kill hardy spinach in winter, it's killed when plants are heaved out of the soil and frigid winds freeze-dry their exposed roots. After the ground is frozen a mulch of straw, rough compost or chopped leaves keeps it frozen, and the roots are never exposed to freezing winds. To encourage root development, I add lots of humus to the red clay soil that covers most of my farm here in western New Jersey. I

use cover crops, peat moss, leaf mold, compost and various mulches to keep my soil rich in humus.

Mulch or not

I have never had a winterkill of fall-planted spinach — mulched or not. However, during many winters when the spinach was unmulched it was covered with snow. If the ground is frozen and snow covers the garden all winter, it's better than any mulch you can put on the garden. The purpose of a mulch — snow or organic — keeps the plants from heaving out of the ground



photos by Walter Chandoha

At left: Spring-planted spinach is ready to harvest about the time chives are in bloom. In a compact garden, harvest the bigger lower outer leaves of both spinach and lettuce to keep the plants visually attractive. **Above:** By interplanting spinach seedlings (transplanted from the adjacent crowded bed) between garlic rows, the yield from that space is doubled. Later, when the garlic needs growing room, the spinach will have been harvested.



Planted last fall, this spinach went dormant during the cold of winter, and resumed growth early in spring. The first pickings coincided with tulip blossom time and continued for a month.

when it alternately freezes and thaws as temperatures fluctuate. In March, if the beds are covered with organic mulch it can be removed to allow the sun's warmth to penetrate into the soil. But this is time consuming and at most you'll harvest a few days earlier. Mulched or not, as the soil warms the plants resume growing; by late April we're eating a fresh-from-the-garden crop, the first of the season.

Fall harvests

Depending on weather conditions in September and October, we may get several pickings from the fall garden. But regardless of how idyllic the weather and how good the spinach looks we don't pick everything. If we eat everything in the fall we'd have nothing for early spring harvests,

which is the whole objective of overwintering spinach.

Spring planting

Spring spinach can be planted as soon as the soil is workable. In my raised beds, I can plant at least a week sooner than in the flat garden — they lose their frost and dry out sooner. Some years I plant in mid-March, but even if the winter has been snowy and the ground doesn't dry out and planting is postponed until late April, temperatures in spring are still cool enough to harvest lots of spinach before the weather turns warm. From the end of May through most of June we get lots of harvests from our spring-planted spinach. But as the days get warmer, any remaining plants elongate and quickly go to seed.

Warm-weather spinach

But even with the onset of warm weather we still get 'spinach' from the garden — maybe not true spinach but an equivalent that our gourmet friends could not distinguish from the real thing. Beet tops are the most frequently used substitute. Unfortunately, red stems of some beet varieties are visually objectionable to some of our family. To fool them I grow Lutz or Winter Keeper beets with green stems. Until they read it here they'll never know they were eating beet tops. Swiss chard is another good warm-weather spinach substitute but it's not as tasty as beet tops. There's another variety of chard called Perpetual spinach, which when immature could easily be mistaken for spinach. Maybe it's the small leaves, maybe it's the breeding, but this chard is tastier than the large-leaf type. Catalogs also list New Zealand spinach and Malabar spinach as warm-weather substitutes for the real thing. Several years back I tried both, but for my palate their flavors were not comparable to Swiss chard or beet tops so I stay with these for summer eating.

Sometimes I'm so busy with writing or photographic assignments both in the fall and in the spring that I cannot find time to plant any kind of spinach — the real thing or one of its substitutes. Consequently the garden is neglected and maybe gets a little weedy. In the spring some of these weeds are edible and one — *Chenopodium album* — is even more flavorful than spinach. Depending on where you live it goes by the common name of lamb's quarters or pigweed. At maturity this weed is tough and inedible and grows in excess of 6 ft. But when the plants are less than 6 in. high they're pulled up by the handful, the roots snipped off with scissors and when we fill a pot we cook it just like spinach.

Whether planted in the spring or in the fall, home-grown spinach provides a big return for the space it occupies. By picking judiciously, either by thinning or selecting the larger lower leaves from maturing plants or using the cut-and-come-again method, you can have fresh spinach on your table for a month or more — both in spring and in the fall. Eat it raw in salads, or cook it and you'll get your beta carotene fix, plus a massive jolt of other vitamins and minerals.



Using the cut-and-come-again method to harvest fall-planted spinach early in spring. Hold a handful of leaves, then cut the stems about 4-5 inches above the ground. In 7-10 days new leaves will be ready to harvest from the cut plants.

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Nationally known writer/photographer Walter Chandoha is a frequent *Green Scene* contributor.

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Where Orchids Run Wild

 by Toni Brinton

The author, a gardener transplanted during summers from West Chester, Pennsylvania, to the White Mountains in New Hampshire, elects to observe wild orchid habitats rather than to garden there. Her process offers a guide for potential plant stalkers.

Twenty years ago I made the wise decision **not** to garden at our “other” house, which is located in Randolph in the White Mountains of northern New Hampshire. Instead I would observe the natural flora in the widely varying habitats found there, from the Alpine Garden on Mt. Washington, to the bogs and bottoms of the Moose and Peabody rivers. There has been more to observe than I could possibly have imagined. The most interesting group of wild plants of the cold northern forests is its orchids.

Raised by orchid addicts (my parents had more greenhouse space than room for people), naturally I rejected those blowsy, garish, corsage flowers. Until one Memorial Day in the early '80s I discovered a great gathering of pink ladyslippers, 40–60 *Cypripedium acaule*, blooming beside the Inlook Trail.

In a half-mile area along this path on one of Mt. Madison's lower flanks, as I huffed and puffed up the narrow trail, there they were, masses of pink glorious bloom. Since that electrifying experience these Cyps have steadily declined. Over time, most of these plants have simply disappeared. I am almost positive no one has “collected” them.

Ten years ago I moved two plants from Mt. Madison to our road, the Pasture Path (New Hampshire), planting them under a white pine in our coniferous woods of mostly balsam fir. These two *C. acaule* have multiplied to five. One plant is 5 ft. from the original clump. Did it self-sow? (The flowers do set seed.) Or did a chipmunk carry a backbulb (segment of the original plant) there?

Also discovered 50 ft. from the house but in the woods along Pasture Path about the same time were a handsome cluster (7–10 plants) of *Habenaria psycodes* var. *grandiflora*, large purple fringed orchids. This group varies greatly. Precise identification doesn't really matter as these plants may intergrade. In bloom, they are smashing. Fluffy drumsticks of beautiful miniature

fringed lavender-pink clustered orchids. At first I fenced them so that walkers (wild animals or tame persons) would not step on and smash these treasures. The second year this group had grown, so I teased the outer plants away from the mass, transplanting them to a safer area in a small rock garden along our drive. There they thrived for about six years. A kind neighbor would photograph them for me when we were not in residence at the blooming time. Suddenly one summer there were only two frail plants and no bloom. The following summer (1989) they were all gone. Very sad, very perplexing.

Then in 1991 a stand of three *habenaria* appeared in the neighbor's woods and bloomed beautifully. Single plants continue to appear and disappear all over Randolph Hill. One bloomed handsomely in the garden in front of the paddle tennis court and is now no longer there. Very mysterious.

In 1989 a group of rattlesnake plantain (*Goodyera pubescens*) was discovered in dark deep woods north of our lane, the Pasture Path. These have endured and increased. The first summer three spikes of bloom appeared, then no further bloom till the summer of 1994. On August 15th one spike of bloom, not yet fully opened, was photographed. Although the pristine white tower of tiny blooms is lovely, it is the brightly patterned leaves with white multi-veining shining against the rich velvet green background that is the *Goodyera* glory.

Identifying these wild native orchids is not always easy and requires several visits and photos for observation. I feel certain this group is the downy rattlesnake plantain because its spike has the flowers tightly arranged cylindrically, rather than loosely or on one side.

Goodyera repens, the dwarf or lesser rattlesnake plantain, was discovered in 1994. I reached for a tree root to hoist myself up a steep section when my hand brushed the little flowering one-sided spike of *G. repens*. I have a photo of this minute beauty and will revisit the plant in the

coming season to check on its health.

August 15, 1994, was a banner orchid day. I had been given precise directions by a member of the Randolph Mountain Club to the location of *Habenaria hookeri*. Just beyond where Grassy Path intersects the way to Lookout Ledge there it was. Wide, large basal leaves, four leaves on two plants with one tall spike of finished flowers, possibly setting seed.

These last two plants are much too close to trails, but the hiking population of the Randolph Mountain Club has been alerted that our flora is precious and wonderful; “look and don't pick.” They've been asked to report location of sightings.

The fastest appearing/disappearing orchid on our Pasture Path is the tall vigorous looking helleborine (*Epipactis helleborine*). In July 1992, while walking the dog early one morning, I spotted a tall 18-in. spike of unmistakable orchid flowers, greenish-white with dark centers. This plant was happily growing in a drainage ditch at the edge of our dirt road. I was not surprised to find that a year later it had disappeared. The plowing necessary to keep the road open in winter necessarily scrapes the edges. However, in July 1993 a collection of helleborines appeared at another site, flourishing among daylilies growing at the edge of our deck. By 1994, alas, no green orchids were found, either in the ditch or among our daylilies.

I've given here a summary of 15 years of orchid watching and wondering. Domesticated orchids grown in the home and greenhouse can be temperamental, I know from experience. The native wild orchids of northern New Hampshire appear to be even more capricious. Why they come and go is a mystery to even scientific orchid researchers. Some of the orchids have low pollination rates; no one knows the life expectancy of these wildlings. They grow often in disturbed environments and their survival depends on many factors. Yet they have provided summer interest and anticipation and have led me to hike trails I might not have tried otherwise. Plant ex-

photos by Toni Brinton

Epipactis helleborine,
described as a
'weedy orchid' from
Europe.



Habenaria psycodes
var. *grandiflora*, a
widespread but
elusive, attractive
native.



Goodyera pubescens,
with beautiful
mottled foliage that
glistens in dark
woods.



Goodyera repens, the
one-sided smaller
version of *G.*
pubescens.



ploration is open to any alert, curious person with a good pocket reference and a small flash-equipped camera to record "finds."

Our town of Randolph has been blessed with curious and talented botanists for over 100 years. The *Flora of Northern New Hampshire* was prepared by Arthur Stanley Pease, amateur botanist, published posthumously by the New England Botanical Club in 1964 (2nd edition). (Pease was a Classics scholar at Harvard and later president of Amherst College.) The tradition is carried on by Brad Mickeljohn, who has completed a Natural Resources inventory for Randolph Township; and he has ex-

cerpted from Pease's *Flora* all the Randolph Flora. I have done the index for this Randolph 1990's update, and all Randolph Mountain Club amateur botanists are now checking and rechecking this specific Flora for its near term publication.

There are 33 orchid species listed by Pease in 1964. So there are sure to be more orchid "finds" ahead for the intrepid plant stalkers.

•

Toni Brinton gardens in Chadds Ford, Pa., chairs the John Bartram Association, and hikes and botanizes in New Hampshire.



IN THE GARDEN

Planting Beyond Perennial Rye



by Kathleen A. Mills

Emerald green swathes of lawn are beautiful to look at and costly to maintain. Money and energy output is high if you consider the need for soil modification, fertilizing, weed control and hours of mowing. While some people will never give up their sea of turf, more and more of us are looking for alternatives to turf grass lawns; we are ready to venture beyond the ordinary lawn of perennial rye.

Turf grasses are resilient when walked on, cover large areas while keeping out many (by no means all) weeds and have a relatively slow growth rate. Their care, although labor intensive, can be explained in a simple maintenance system easily understood and stubbornly adhered to: fertilize, mow, mow, mow . . . (you get the idea).

The first place grass turns from friend to foe is on a slope. Mowing on slopes be-

comes a tough chore, and it's here we begin to look for a turf replacement. Listed in Table 1 are a few suggestions for alternate slope plantings.

Next, grass meets us as the enemy in shady spots. Around trees, where sun and moisture are at a premium and soil acidity tends to be high, the emerald carpet becomes elusive. Turf grasses like a sweeter, limier soil and need sun to look their best. Moss is a great alternative for these spots*. (See "A Moss Garden Replaces a Turf Lawn" by David E. Benner, *Green Scene* [November 1980, p. 23, Volume 9, Issue 2]. There are also other plants that act as great groundcovers for these areas. See Table 2.

The list of plants that can substitute for turf grass in a large lawn setting is limited. Let's face facts, turf grasses are among a select group of plants that can be stomped

on, run through and rolled in, that pop back and don't seem worse for wear. But where lawn areas see light traffic, are dotted with flower beds (as in most gardeners' yards), or can be laced with pathways, there are sturdy, reliable choices. See Table 3.

Turf grasses like sunny locales where the pH is not too high and not too low, the soil is fertile, the drainage excellent and the water supply plentiful. Sounds like a wonderful place for almost anything to grow in, but not many of these spots exist. Rather than embarking on the never-ending journey of transforming the environment to suit the plant, try choosing a plant that fits the existing environment. Output, in terms of dollars, time and resources will be minimized and your enjoyment maximized. A radical concept.



photos by Walter Chandoa

Cotoneaster spp., suitable for sunny slopes; cotoneasters offer delicate white to pink blooms in spring followed by abundant red fruit, often persisting into winter (Table 1).



Vinca minor, the purple flowers of *Vinca minor* celebrate the sun each spring before leaves appear on deciduous trees. During summer and autumn, *V. minor* thrives in the trees' shade (Table 2).

More Reading about Ground Covers

Complete Manual of Perennial Ground Covers, David S. Mackenzie, Prentice-Hall, New York, 1989.

Gardening with Groundcovers and Vines, Allen Lacy, HarperCollins, New York, 1993.

Groundcovers (Burpee American Gardening Series), Margaret Roach, Prentice-Hall, New York, 1993.

Plants for Ground-Cover, Graham Stuart Thomas, Sagapress/ Timber Press, Portland, OR, 1990.

Taylor's Guide to Ground Covers, Vines & Grasses, Houghton Mifflin, Boston, 1987.

These books are available from the Pennsylvania Horticultural Society to its members.

TABLE 1 — GROUNDCOVERS FOR SLOPES

Plant Name	Exposure	Soil	Hardiness	Remarks
<i>Cotoneaster</i> spp.	Sun	Will grow in heavy clay	-10°	Watch for fire blight and scale. Keep pruned for maximum air circulation.
<i>Gaultheria procumbens</i> Wintergreen	Part shade	Moist/Acidic	-35°	Grows to 6 in. Needs a cool place to grow. Well suited for around rhododendrons.
<i>Hedera helix</i> hybrids Ivy	Sun/Shade	Well drained	Cultivar related	There are many hybrids that have unique textures and variegations. Mow every other year to rejuvenate and control growth.
<i>Juniperus</i> spp. <i>J. procumbens</i> <i>J. horizontalis</i> cultivars 'Bar Harbor' 'Wiltoni' or 'Blue Rug' <i>J. conferta</i> 'Blue Pacific'	Full sun	Well drained	-25° most spp.	Watch planting large areas with only junipers. They are prone to phomopsis twig blight. Mix in other plants so the disease won't leave you with a bare slope!

TABLE 2 — GROUNDCOVERS UNDER TREES

Plant Name	Exposure	Soil	Hardiness	Remarks
<i>Galium odoratum</i> Sweet woodruff	Shade	Loamy	-30°	Grows to 6 in. to 8 in. Propagate by division. No traffic.
<i>Pachysandra procumbens</i> Allegheny Spurge	Shade	Well drained Humusy	Native to Southeast. Hardy in Phila.	Grows to 10 in. Leaves spotted white. Great change from <i>P. terminalis</i> !
For more information on this great native see "Look For The Native Pachysandra" by Elizabeth Derbyshire, <i>Green Scene</i> , May 1979, p. 22.				
<i>Vinca minor</i>	Part shade	Very adaptable	-30°	Keep watered during dry spells. Watch for fungal problems. Propagates easily by division.

continued



Ajuga reptans, a garden workhorse, bugleweed is available in several variations of leaf color, flower color and growth habit (Table 4). *Ajuga reptans* 'Multicoloris' has a mottled leaf of red, white and yellow on green. Its cultivars 'Alba' is a white-flowered form; 'Compacta' has a dense growth habit.

TABLE 3 — LAWN ALTERNATIVES

Plant Name	Exposure	Soil	Hardiness	Remarks
<i>Chamaemelum nobile</i> Chamomile	Sun. Can tolerate some shade.	Light sandy soil	0°	Grows 1-8". Fragrant. Drought resistant. Propagate by division.
<i>Thymus serpyllum</i> Mother of Thyme	Sun	Well drained	-30°	Grows to 3 in. to 6 in. Great for dry slopes. Divide in spring by cuttings or divisions. Fragrant.

TABLE 4 — OTHER GREAT GROUNDCOVERS

Plant Name	Exposure	Soil	Hardiness	Remarks
<i>Ajuga reptans</i> Bugleweed	Part shade	Well drained	-10°	Propagate by division. A light mowing rejuvenates after they bloom. Tolerates light traffic.
<i>Asarum</i> spp. Ginger	Shade	Humus rich	-25° most spp.	Grows to 10 in. Propagate by root division. Do not allow to dry out.
<i>Potentilla verna</i>	Full sun	Well drained	-10°	Grows to 3 in. to 6 in. Water in drought. Flowers. Can be walked on. Propagate by division.

Letters to the Editor

Hummingbird Feeder Alert/Warning

I want to respond to Helen Tower Brunet's delightful article *Hummer* in the May issue of *Green Scene*. It is important to let your readers know that commercial red liquid is not safe for hummingbirds. As far as color is concerned, the red feeding base of the container is enough to attract hummingbirds.

A more nutritious and less expensive liquid is available in our kitchens — a solution of sugar water. The formula is simple. Bring one quart of water to the boil. Add one cup of granulated sugar and stir until dissolved. When the mixture is cool to room temperature, pour into a clean feeder. To clean a used feeder, the smallest baby bottle brush will take away any grey mold spots on the inside of the bottle.

A neighbor reports that "her hummingbirds" peck on the window when the feeder is empty. I usually make two or three batches of sugar water at the same time — then refrigerate in glass containers until needed. The sugar water does have to be warmed to room temperature.

I have always used sugar water for feeding, as a result of information gathered from friends who are chemists. Before writing this letter, I talked to Wild Birds Unlimited, a shop in Redmond, Wash., which specializes in feeders, bird houses, grains, etc. They state "no red coloring is safe." In the 1994 Revised Edition of *Songbirds in your garden* by John Terres, it is stated that honey should not be used, as "honey becomes contaminated with a fungus that affects the tongues of hummingbirds and eventually kills them," (p. 165). Also, on page 176 Terres states that if you are just beginning to attract hummingbirds to a feeder, use one part sugar and two parts water, because they prefer a very sweet solution. Once the hummingbirds are coming, dilute the mix to one part sugar to

four parts water and eventually to one part sugar to eight parts water "recommended by Dr. Ruschi to protect hummingbirds from the possibility of getting enlarged livers from the richer solutions."

Emily Muller O'Neill
Oak Harbor, Washington

Bitten and Smitten . . . by the Butterfly Bug

When I received my May/June issue of *Green Scene*, I was glad to "Bitten and

Smitten . . . by the Butterfly Bug by Linda Young. However, my jaw dropped when I read the photo caption on page 31 directing readers to "pick it off and get rid of it" if you see a spicebush swallowtail larva dining on your parsley, etc.!! Whatever could be the justification? I'd get rid of gypsy moths and tent caterpillars. My solution: plant lots more parsley etc. to keep the swallowtails coming. Am I missing a vital piece of information?

Carole Stober
Glen Gardner, N.J.



An Invitation to Plant Societies

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We will publish information about one major plant sale and one major event for each area plant society based in the Delaware Valley from March 1, 1996 through December 1996. Send the information to Joe Robinson (*Green Scene*, 325 Walnut St., Phila., PA 19106.)
Deadline: Dec. 1, 1995. Please use the following format:

NAME OF CHAPTER AND SOCIETY: _____

	Event #1 — Major Event	Event #2 — Plant Sale
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Dates	_____	_____
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(full address)	_____	_____
	_____	_____
Fee, if any	_____	_____
Contact person	_____	_____
Address	_____	_____
	_____	_____
Phone Number	_____	_____

33



CORRECTION: Shine on Gibbous Moon

July issue of *Green Scene*, "The Garden Tells Time"

Yoiks, in the Some Moon Parlance chart on page 13, a slip of the keyboard gave us Gibbons Moon when it should have been Gibbous Moon. Thanks to Truman Read, F. Markoe Rivinus, Greg Davis, John M. Aronian III, M.D., and Joan Hintermeister who wrote to correct our typo.

Jean Byrne, Editor

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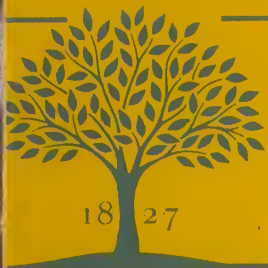
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Fall-planted spinach goes dormant in winter and resumes growth in early spring. It is ready for harvest at the same time spring-sown lettuce reaches a harvestable stage.
photo by Walter Chandonia



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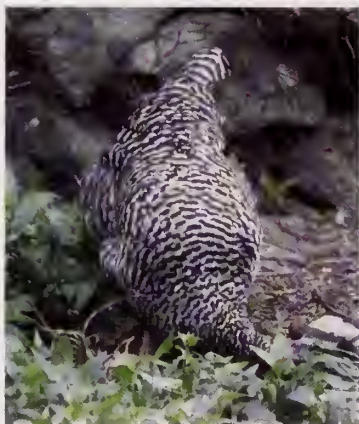
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*John Collins, winner of the
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See page 8.*



3.



29.

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John Collins has served as professor and chair of the Department of Landscape Architecture and Horticulture of Temple University at the Ambler Campus since 1988. On the front cover, Collins is shown at the gardens of the Ambler Campus with Kathleen McBride, a junior with a horticulture major and a full-time Burpee Trial gardener at the Campus.
photo by Ira Beckoff



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in this issue

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Volume 24, Number 2 November/December 1995

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the green scene / november 1995

A photograph of a woman with short grey hair, wearing a light-colored jacket, standing in a lush garden. She is surrounded by tall yellow lilies and pink flowers. In the background, there is a rustic log cabin with a green roof, partially obscured by large trees. A black dog is lying on the grass to the left, and a white dog is partially visible behind the flowers. The scene is set in a verdant, wooded area.

For Pamela Gladding, it is the sum of all its parts, not only the choice of plants for the garden, but how that garden sits in the landscape and interacts with the native environment that completes the circle, makes the music. Sometimes the pleasant results of self-seeding varieties give the artist new color combination ideas.

photo by Erik Ohberg

A Harpsichord Decorator Finds Inspiration in her Garden

 by Duane Campbell

A Harpsichord Decorator Finds Inspiration in Her Garden

Dudley is a restored, fire-engine red 1957 Dodge Power Wagon — an old pickup truck to you and me. Dudley and his friend Froggy, a 1950 Ford farm tractor, have helped Pamela Gladding sculpt an exuberant garden out of the rock and mucky yellow clay that make up the hills of Columbia County in Northeast Pennsylvania.

Six years ago this parcel was an abandoned Girl Scout camp complete with a half rotted 1810 log cabin for a lodge and the obligatory sheared pasture that served as parade ground, softball field, and camp-fire site. Even earlier, before the Girl Scouts moved in, it had been a hard-scrabble 19th Century farm. Now it is a garden, a wondrous garden, a garden with a strange and sublime purpose.

Pamela Gladding gardens with a mission. She is primarily an artist, and like any artist, she finds her subjects where she can. Her subject is just out her front door, the flowers and foliage of her garden. But unlike most artists, who paint on paper or hardboard or canvas, her Baroque blossoms grow on the sides and lids of harpsichords. Though she has also produced several wall-paper collections, Pamela Gladding is, by profession, a harpsichord painter.

Harpsichords were the craze of the 17th Century, declined when the piano came along, and came back with the power of a Bach fugue in the 1960s. In this era of computer-controlled assembly lines, harpsichords are still produced as they were when Bach was a boy, by individual craftsmen who know their trade. And they are still decorated the same way, by an artist who knows her craft, who knows her history, and who knows her garden.

You come to the site through a series of twists and turnbacks, eventually creeping down a rock-and-rut road to the back of the restored cabin. It is a nondescript scene common to any back-woods settlement, with rustic outbuildings and stone walls built before our grandparents were born, all nestled in a natural basin in the hills.

Walk around the side of the house and a

panorama opens and stops you in your tracks. On nearly an acre of gently sloping land lie four huge kidney-shaped island beds, 4,000 square feet in all, spilling over with hundreds of lush perennials. Bordering and punctuating the space are dozens of trees, both native and exotic: birches and cherries, hazelnuts and oaks and maples and elms, magnolias, willows, sycamores and cedars.

An artist needs a garden as much as she needs shelter, and both tasks were tackled simultaneously.

It is hard to believe that this cozy cabin and lush landscape were both derelict only six years ago. The project was formidable, and many would have dedicated their early energy to making the house livable. But an artist needs a garden as much as she needs shelter, and both tasks were tackled simultaneously.

Pamela had her priorities in order. The first was starting mountains of compost, using a barnful of ancient sheep manure mixed with wood chips and sawdust from nearby lumbering operations. Once that was cooking away, it was time to lay out the bones and prepare the soil.

The overgrown field was coarsely cropped and prospective beds were highlighted with a lawn mower. Froggy, the stalwart old tractor, muscled boulders out of the soil, leaving behind yellow clay that once had actually been mined by a local ceramic tile maker. The plentiful rocks, augmented by others lugged up from the brook that runs along the base of the meadow, were relocated on the downhill side of each bed, creating rugged retaining walls and leveling the beds.

The following spring Dudley the Pickup trucked load after load of prime compost to be dug laboriously into the hard-packed beds. Sweat poured, bodies ached, but finally came the time to plant the still-empty landscape.



Exploding Rembrandt tulips coupled with St. Honore Jobert anemones dance along this wallcovering border singing "Primavera," designed by Pamela Gladding. ©PM Design Group, Inc., from "Walden Suite" collection, Bob Mitchell Designs, Sunworthy Wallcovering.

The beds had been laid out with the eye of an artist. Viewed from the spacious verandah that was added to the front of the cabin, the graceful curves of the 100-foot-long islands blend gracefully with one another, forming a cohesive vision framed by the surrounding feral forest. But an artist also knows that a garden is a three-dimensional construction, so first to go in were appropriate specimen trees.

In the bordering forest grow the giant trees of the northern hardwoods, but here were planted trees of a more suitable size. Native mountain laurel and dogwood, fruit trees for both beauty and bounty, a treasured Harry Lauder walking stick, and multi-stemmed white birch give a vertical dimension to the gardens and provide an artist's chiaroscuro of dappled shade and sun in the beds to accommodate the various needs of the different herbaceous perennials.

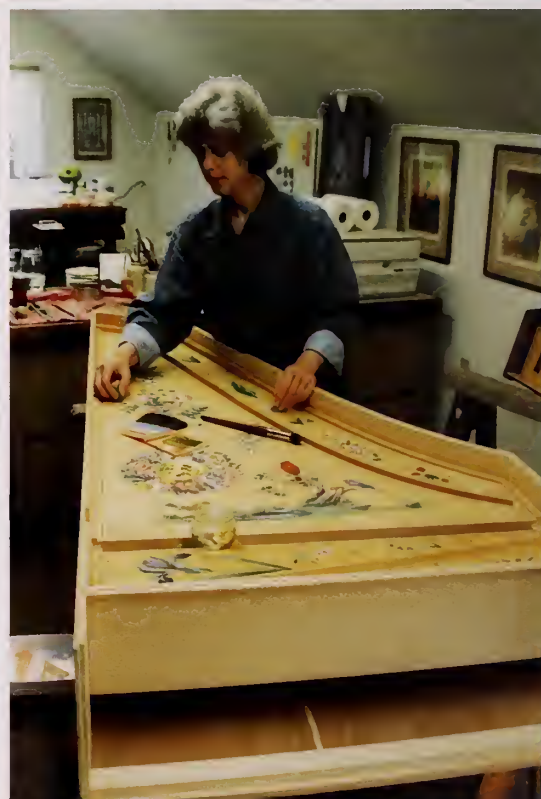
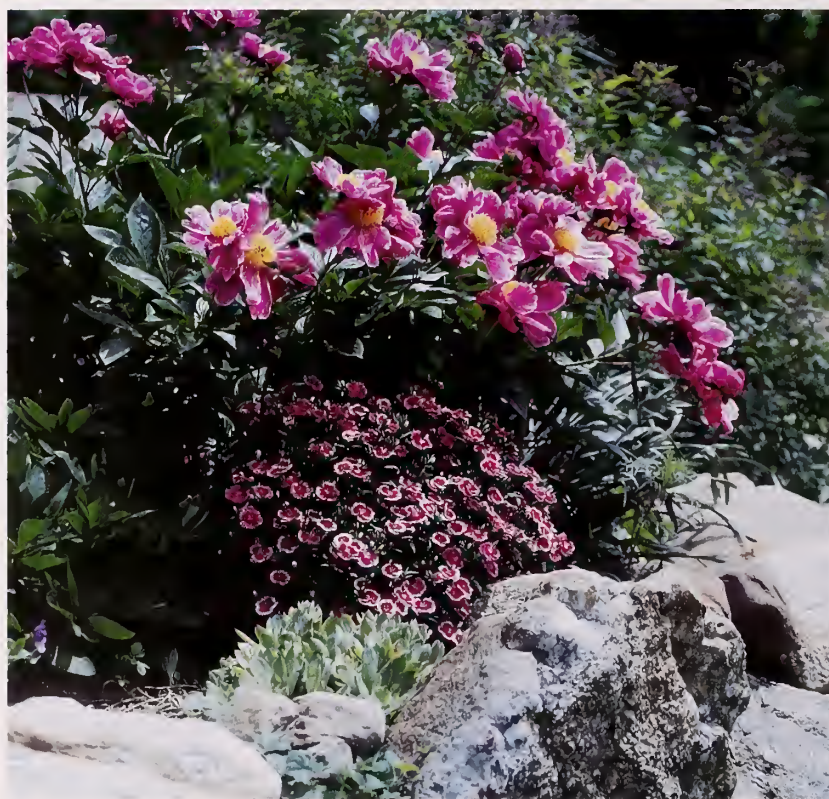
With the framework established, the flowers were chosen and planted. Bushels of bulbs in gentle yellow and pink shades complement the spring-flowering trees. Masses of perennials in the muted colors of Monet predominate, but here and there a spot of stronger color makes its statement, bold but somehow not obtrusive. Flowers and foliage of shrubs add different shapes and textures. Groundcovers at the edges tie the beds to the grassy avenues that surround them. The rough-hewn boulders are colonized by sedums and sempervivums.

Given generous spaces to fill, Pamela has done what we all wish we could do. Monarda and daylilies and poppies spread for yards, lavish masses, flowing one into another. Interspersed with these drifts are more individual plants, peonies and lilies and the like, that stand on their own. Eight-foot fountains of ornamental grasses grow as nature intended, dominating their positions with eight-foot-high, arching monuments to the new richness of the soil.

An example or two of the dozens of ornamental plants would have sufficed, providing enough subject matter for a decade's worth of harpsichords, and fit into a fraction of the space with a fraction of the



At top: Pamela's love of her surrounding mountains and nearby stream helped her to visualize this scene of Orpheus entertaining the woodland animals with his lute, for her two-panel painting of the harpsichord. **Bottom left:** Niche with its flowers on the harpsichord flap. **Bottom right:** Completed paintings including the floral and fauna themes of the Baroque era on the right panel.



At top: Purposefully choosing a diverse variety of plants for her garden gives Pamela the reference material she needs to satisfy specific requests from commissions. She sketches periodically and files the sketches for future use. **Bottom left:** As it has done for centuries, this single-petaled peony offers good resource material for Pamela's Chinoiserie commissions, and becomes a good reference for color and botanical detail when painted on a harpsichord's interior sounding board. **Bottom right:** The artist paints the harpsichord's sound board, which lies flat under the standing cover (see completed example on page 7).

A Harpsichord Decorator Finds Inspiration in Her Garden

Harpsichord Styles

The center of early harpsichord development was 16th Century Flanders, where painters, then as now, used the subjects available to them. Purely ornamental gardening had not yet evolved, so early harpsichords sprouted wildflowers, fruits, and the medicinal herbs found in the utilitarian gardens of the time.

By the 17th Century that region, which included parts of Holland, had embraced flower gardens, and their obsession with tulips showed up on harpsichords of that period, with blossoms pictured typically at a near blasted stage rather than the tight cup we favor today. Another century brought hothouses to northern Europe and rare hothouse flowers to the sides, sound boards, and lids. Antique instruments today may show signs of all of these styles as owners over the centuries mended and updated to the current vogue.

Some harpsichords received a more lavish treatment. Exotic chinoiserie in dramatic black and gold was hot for awhile, or sometime the lid was used as a canvas for an elaborate landscape painting. But flowers decorate the sound boards, made of spruce with grain straight and fine as a pin stripe suit, and a wreath of flowers always surrounds the "rose," a maker's mark adopted from medieval lute makers.



photo supplied by Pamela Gladding

Pamela's familiarity with a garden's plants and its accompanying insects and birds helped her to interpret this 18th Century style of Chinoiserie. (A private commission; copy after the Coujon — 18th Century Paris Conservatory.)

work. But the passion of the gardener and the needs of the artist are as intricately intertwined as the serpentine island beds.

How can a working woman, no matter how genteel her career, find the time for such an expansive landscape? The answer lies with the neighboring sawmills. Each spring the artist's studio is shut down for two weeks, Dudley is called back into service, and truckloads of new wood chips are rounded up. Moving methodically from plant to plant and bed to bed, Pamela chops back old growth, applies liberal doses of

compost, and lays down a thick layer of mulch. The operation, a peculiar vacation, serves the garden and the gardener well, providing the weed barrier and moisture retainer that will see the garden through the season and at the same time fulfilling the gardener's need for intimate contact with soil and plants in early spring.

This garden is not totally effortless after that prodigious effort — no garden is — but the work is manageable. Pamela can leave for weeks at a time if necessary, as when she gets called to Europe for a commission

to paint an instrument too costly to ship to her. Or she can stay home, sitting on a low stone wall, sketchbook in hand, enveloped in the gentle babble of the unseen brook and in the satisfaction of work that inspires the garden and is in turn inspired by it.

●

Duane Campbell lives in Towanda, Pa., where he gardens, writes, and publishes a newsletter called "POTS: A Casual Journal for Growers of Container Plants Inside and Out."

In John Collins's Liveable Landscapes, Plants are the Medium; Native is the Message

 by Judy Mathe Foley

Want John Collins to build you a park? Give him an idea, a pencil, and a napkin and he'll draw you one. That drawing will be so detailed, says Alice Sjolander, department manager and Collins's assistant at Temple University's Ambler campus where Collins is a professor and chair of the Department of Landscape Architecture and Horticulture, "You can take that napkin and build from it!

"John thinks with a pencil," Sjolander says. "It's a big joke around here that if you have an idea John will pick up whatever's available — even a napkin — and draw what you're saying. That drawing will be beautiful — and done from several perspectives."

When those drawings of Collins's, the professional landscape designer, come off the paper, they are likely to reside in an urban environment of macadam and concrete. But the true soul of John Collins, artist and plantsman, lies in richer soil, attuned more to nature's creations than to people-made structures of concrete and steel. "John Collins is more than simply a landscape architect. He is strongly bonded to the earth and the plants themselves — and to the people who interact with them," says John Randolph of the Schuylkill River Development Council, Inc., which helped to raise approximately \$5 million to begin construction of the Schuylkill River Park, which John began designing 30 years ago.

Spreading like zucchini over Philadelphia's landscape with quiet productivity, Collins is at Temple's Ambler campus four days a week; at his landscape design firm, The Delta Group, in center city, "in pieces" one day a week; and at either or both places three or four nights a week until about 10 p.m. Saturdays he spends "the whole day, if I can, in my nursery in Conshohocken. It's my therapy. I dig and pot trees."

Hands-on and always helpful, he's a professor who always has time for a student's question. "He's generous with his knowledge, truly interested in helping people. Really a caring guy," says Caroline I. Friede, a Temple staff horticulturist.

Adaptability is the quality mentioned by Dolie Green, a Temple landscape intern. "He knows what has to be done, and knows the parameters that will allow you to accomplish what he wants, as well as what

you perceive should be done. So where someone else might find conflict because they've set something in motion and can't get the job done, with John, there's always room to adapt or adjust. You have to be many things to succeed in public landscaping and he's all of them."

When Collins was developing a naturalized area on 20 acres of a 150-acre Rohm and Haas research facility in Spring House,

Maintenance is his mantra. Ask John Collins what he considers the mark of success of a public landscape, and he responds without hesitation: "One that lasts." Market Street East ranks high on his satisfying project list because it has a well-developed maintenance program that became a model to help launch the Center City District idea.

Pa., "he would come out on his own time, bring his own truck, and we would dig and plant," says Will Brouwers of Rohm and Haas. "John was extremely generous with his time."

But John Collins would not be receiving the Pennsylvania Horticultural Society's 1995 Distinguished Achievement Award if he were just a nice guy with a talent for drawing. The award recognizes 30 years of "dedicated service through education, environmental planning and design, and horticulture." Much of that service has been in public places and with a wide array of people from corporate executives like G. Stockton Strawbridge, the guiding force behind Market Street East's renewal, to prison inmates who mowed the grass and pruned the trees at Schuylkill River Park.

In North Philadelphia, for example, Collins provides steady and gentle direction for ambitious human and economic development programs. Temple Park Builders, a program to train unemployed inner city residents, constructed a Collins-designed teaching garden at the Meade School at 18th and Oxford in a project led by Philadelphia Green. And four trainees are now at work on a park near St. Joseph's Prep in North Philadelphia. Collins works with the community organization, Sea Change, at 15th Street and Cecil B. Moore Avenue to

provide advice on caring for a tree nursery that aims for economic development in that neglected part of the city. Near Lehigh Avenue, Collins has worked with People United Together, "a marvelous crew of ex-inmates helping other released folks find ways to survive in the city with jobs and alcohol and drug-counseling programs."

Variety and innovation are marks of the man. One reason he decided to have Temple students grow the plants used in the hanging baskets on the light poles on Market Street East, Collins says with a slow, sly smile, was "just to prove it could be done."

Delta Group Vice President Tom Schraudenbach says the only thing that riles the usually unflappable Collins is when people won't try new things, take on new challenges. "He's never content with just solving problems. He wants to open people's minds to all the potential." In North Philadelphia, Schraudenbach says, "John looks at revitalization of the environment in an area that desperately needs to capture people's imaginations and make them want to be there."

"John is always looking for something new and different," says David Dutot, founding partner of the Delta Group. "His overriding concern is that anything we design has to be functional. The form the project takes is a fairly individual one."

A Superman trick at 17th and Market

To find the essence of a Collins design, visit tiny Chestnut Park. Take a brown bag lunch to 17th Street and search between the shops on the north side of Chestnut Street for a set of sculpted iron gates. Walk through those gates and the change of scenery is so abrupt as to make you glance back to get your bearings. The Clark Kent-to-Superman transformation occurs in a space only a bit larger than Kent's telephone booth dressing room. Though the park is crowded, you will be able to find one of the 50 seating spaces — and a bit of privacy — on a wall or bench. All the details — the native Wissahickon schist, the cascading water, the cool, vine-covered walls — create an almost instant sense of refreshment. Such is the Collins magic that when you leave, you will be sure you walked the soft forest floor even though Chestnut Park is covered by paving stones.



Ask John Collins a question and he immediately starts sketching. His *Livable Landscape Design*, co-authored by Marvin Adleman and published by Cornell Cooperative Extension, shows 61 pages of beautiful, clear sketches designed to assist the homeowner, the landscape designer, the nurseryman and contractor in understanding and applying the basic principles of design to the landscape. Shown with student Kathleen McBride.

A Collins-created green space is not a generic, regurgitated idea, but has a strong sense of place. It reflects and celebrates its surroundings and history, often in pieces of sculpture like Chestnut Park's fountain, which contains totems of the local Leni-Lenape Indians. It is a soft, and passive place where trees provide a cooling canopy that creates, where possible, a woodland floor beneath. It contains native plants — maybe even some he grew himself from seed in his nurseries in Conshohocken or in Ambler. His designs, as serene as the man himself, come complete with plans to sustain people and plant life into the future.

Collins extols pastoral, passive landscapes. "We tend to think of parks as baseball diamonds and basketball courts and playground equipment," Collins says. "We've been slowly phasing the bucolic landscape character out of our parks. In America we really let active sports dominate. But there is an equal need for some



Collins's master plan for Schuylkill River Park included a community garden that required considerable lobbying to convince people that horticulture is as beneficial as baseball or hockey.



Collins discussed pruning details with Shari Stewart, who cares for the Sea Change tree farm in North Central Philadelphia (near Temple University). This tree farm is part of an urban horticulture center that Collins master-planned; it includes an herb garden, a special events garden and a farmer's market.

passive, soft, less urbanized space as well."

When in the first phase of the development of Schuylkill River Park some 10 to 15 years ago, his master plan included a community garden, "it was seen by some people as an intrusion into the park in space that might better be used for more active uses. We lobbied very hard for the gardens.

It's a big world out there, and John Collins is bringing it to us piece by piece.

Fairmount Park Commissioner Ernesta Ballard was a big help in trying to convince people that horticulture is an equally valuable recreational activity, just as beneficial as basketball or hockey. And it's been very successful."

Inspired by Fairmount Park, Collins decided early to use his love of drawing and painting in public landscape design. "I think I first realized the importance of public landscapes when I worked as a gardener before I went to Penn State. I was driving on East River Drive with Mrs. Arthur Paul and she described some of the places her husband had designed, like the Glendenning Rock Garden. And I thought, "What a marvelous opportunity to be able to provide the public with neat places they otherwise can't afford, or wouldn't have the opportunity to participate in. It hit me very strongly that public landscapes were important."

He came of professional age at the

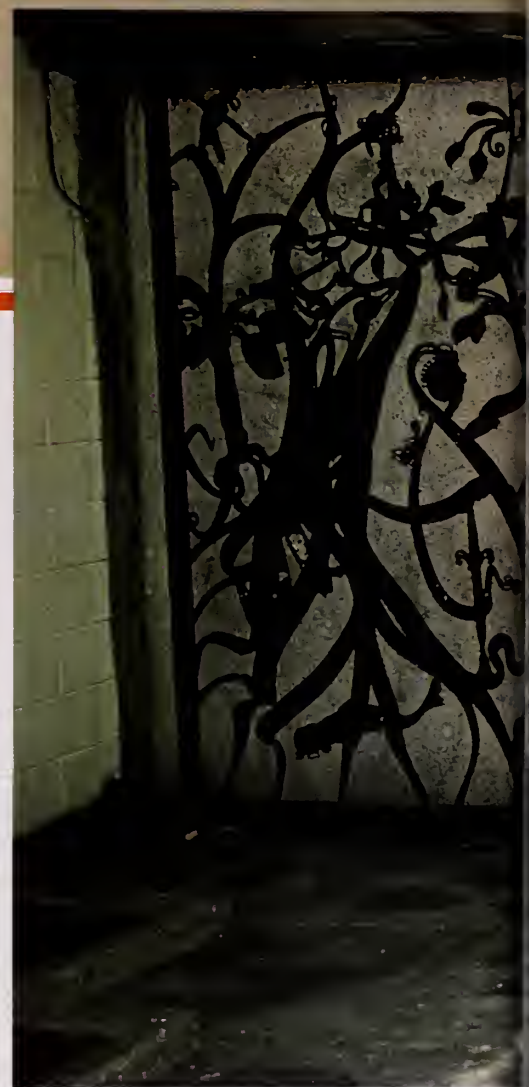
height of urban renewal when the popularity of shopping malls was destroying the historic character of older cities. Collins's son, John R. Collins, Jr., an architect who recently joined The Delta Group, says the reality of bad design decisions came right to the front door of his father's hometown of Conshohocken when it became a ghost town after the Plymouth Meeting Mall was built.

A strong sense of identity

Preservation prevails in his designs. In Salem, Massachusetts, where Collins and Schraudenbach spent 10 years and many all-nighters, he haunted the public library to research local history. As a result, the Collins-designed fountains there reflect Nathaniel Hawthorne's writings and the city's part in the China trade. "John always asks, 'How can we make sure these beautiful things can be preserved? How can we reveal things about their own special place in history?'" Schraudenbach says.

"The best part of the experience in Salem," Collins wrote, "is the proof that an old community with a strong sense of identity, hard work and a good urban design team can successfully compete with, and best, the faceless, wasteful suburban malls."

Preservation was at issue, too, at Navan Fort, in Armagh, Northern Ireland, where Collins helped fight expansion of an "evil limestone quarry" which threatened an ancient religious site near where St. Patrick founded his mission. Collins's latest project



is working with a small committee to guide the design of a memorial to the Irish potato famine on the cover park over I-95 near Chestnut Street in Philadelphia.

Collins celebrates local landscapes because "architecture and building technology are the same all over the world, but the landscape is one of the few things that can express the regional character of each particular place. If you pick up a book on architecture and see dense groves of white birch, those trees immediately express the special character of Scandinavia," he says. "We have such a rich natural landscape in our region, one that can withstand a lot of the urban stresses if you make the right selections."

Making the right selections, "knowing not to put the wrong plant in the wrong place," was one of the reasons Ernesta D. Ballard, a member of the committee that called Collins to Temple, felt he was perfect for the job. "He's a plantsman. His design work makes sense. He knows what people want and what makes them com-



Collins designed Chestnut Park, a tiny garden filled with plants native to the Greater Philadelphia area, at 17th and Chestnut Street. So ingeniously designed and planted, this small garden, delightfully unexpected on a busy thoroughfare, enables people to find serenity and privacy at any of the 50 seating spaces.

fortable, what is beautiful, and what works. In his designs he thinks about how the people and the designs will interact in the years to come."

Maintenance, maintenance, maintenance

Maintenance is his mantra. Ask John Collins what he considers the mark of success of a public landscape, and he responds without hesitation: "One that lasts." Market Street East ranks high on his satisfying project list because it has a well-developed maintenance program that became a model to help launch the Center City District concept. More and more, he says, community groups are taking responsibility for maintenance of public greenscapes, a heartening development.

Intensively involved in Chestnut Park for 15 years, Collins often cared for it himself without compensation when it began to look shabby from over-use and under-care. In 1994 the pocket park found a new patron, the Center City District, and Collins went back and refurbished it. He

did the same with Circus Plaza on the west side of 12th Street between Market and Chestnut. Originally designed by Collins and paid for by PSFS, the park outlived that banking institution, and he refurbished it in late October 1994. "You know you're getting old," Collins told Paul Steinke of the Center City District, "when you've rehabbed your work a second time!" If it needs to be done again, he'll do it again because he's in for the long haul. "He feels a responsibility to the region and to the plants," says Caroline Friede, "because he has a sense that what we do here affects the region, the country, and the planet."

The interdependence of people, plants and wildlife is at the root of the Collins philosophy. As he wrote in the book, *Liveable Landscapes*, "What you do on your land is likely to have a visual and environmental impact well beyond your property lines."

John Collins wants to share his landscapes with others, to bring his well-developed sense of living in harmony with

nature to city dwellers who haven't experienced it. "It's really exciting to see grade school kids at the Meade School making posters about the Piedmont and Coastal Plains natural regions, which most college students don't even know about," he says.

"One of the things missing for urban kids is contact with nature. Without access to distant vacations that suburban kids have, they grow up on pavement without ever understanding how a plant grows or what the characteristics of soil are, without any appreciation for wildlife. They need this contact with the natural world to be healthy human beings."

Alice Sjolander captures her boss's mission and accomplishments well when she says, "It's a big world out there, and John Collins is bringing it to us piece by piece."

Author Judy Maihe Foley, a new Philadelphian, grew up in a part of the state near the 70 acres of woodland where John Collins built what he calls "a wooden tent — without running anything."

Dear Santa, I Want it All!!

by Joseph Kerwin

Remember that old song: All I want for Christmas is my two front teeth. Now there was a kid who knew how to dream; to go beyond reasonable.

As an exercise, I wanted to see if I could stir gardeners into a higher realm of wishing for the holidays. I wrote to 11 people asking them to let themselves go and imagine what they'd want if money was no object; what they'd give themselves or ask for — I suggested they be outrageous. Of course, I found out that some people still have the heart of a child and the capacity to be daring and outrageous and others are more modest and aren't about to dream out loud for something that might smack of self-indulgence.

Here are the two questions I asked:

- **Receiving.** It's been a great gardening year; the holidays are creeping upon us and you feel the need for some horticultural pampering. Don't let money limit your wish list; what gift would you buy for yourself or would you like to receive.
- **Giving.** Is there someone in your life who introduced you to that first plant or garden, mentored you in horticulture, or someone today with whom you share your garden trials in this art form whom you would like to give a gift to? If money were not an issue, what would you give them?

I mentioned the questions to a gardening friend who jokingly asked, "How is anyone going to work a Rolls-Royce convertible into the article?" Well, I thought, if the gardener was really interested in a car, he could fit it in easily enough.

I was curious to see what **Ed Lindemann, Philadelphia Flower Show designer and director**, wanted for himself. After all, Ed is in the business of fantasizing big for the Show. As I guessed, it was not a car but something more dear and irreplaceable to gardeners — a strong healthy back. Ed mentioned that each year his back becomes a little stiffer, the bales of peat moss seem to weigh more, the lawn mower is harder to start, and the hedge needs clipping more often. Ed said if Santa couldn't bring a perfect back, he'd be quite happy with some gardening help for these chores.

As a recipient for his fantasy gift, Ed selected his wife Carol. Carol remains at home to cope with assorted dogs and cats and tends their garden when Ed travels to

the great gardens across the pond to search for inspiration, exhibitors, and themes for the Flower Show. This year, Ed would like to give her a tour of those wonderful places with their gardens and gardeners. To those of us who know and love Ed this is a generous gift. Watch out Carol, Ed may give you a holiday to Europe, but remember he's looking for more help in the garden! (This is a "wish list," right?)

Judy Zuk, president of Brooklyn Botanic Garden, would also like to give a trip: her gift would be to send her first gardening mentor, Mrs. Walhart, around the world to visit all the great gardens. Mrs. Walhart gave Judy her first plant almost 40 years ago. That pussy willow, which Judy rooted in water, grew into a tree. Mrs. Walhart allowed Judy to follow her as she gardened in her city garden (Irvington, N.J.); and she now gardens in a more rural setting in Silverton, N.J. Mrs. Walhart has become an avid traveler and Judy thought it would be nice if she went along as her companion and guide. I guess that's why Judy asked only for a border spade and a super duper trowel that won't bend or break under ordinary circumstances. She got a two-fer on her dream list.

Nicholas Lapp, a New York florist, really took the question to heart. "For me," he writes, "since this is about pampering: an antique wrought-iron gazebo covered in brown velvet roses (I'm ahead of the hybridizers) and *Niobe* and *Clematis* x *Jackmanii* in full bloom looking out on, if not the real thing, at least a grand copy of the Nike of Samothrace from the Louvre's grand staircase, rising above a bed of *Cineraria* and forced *Hydrangea* in every shade of blue imaginable, backed by huge pots of *Brugmansia* and the old estate *Gardenia* with the really big flowers. Oh, and while we're dreaming, a bottle of port to drink in the gazebo. Of course, after all the port I'd wake up and realize the vacuum cleaner was still running and the dog needed a walk, but that's life."

Probably, because Nicholas was so modest with the gift he selected for himself, he chose two recipients to give to. First, "For my parents: someone besides me to plant all the tulip bulbs that I'm sending, and a vegetable garden laid out like the periodic table of the elements (my father and brother are physicists). After all the



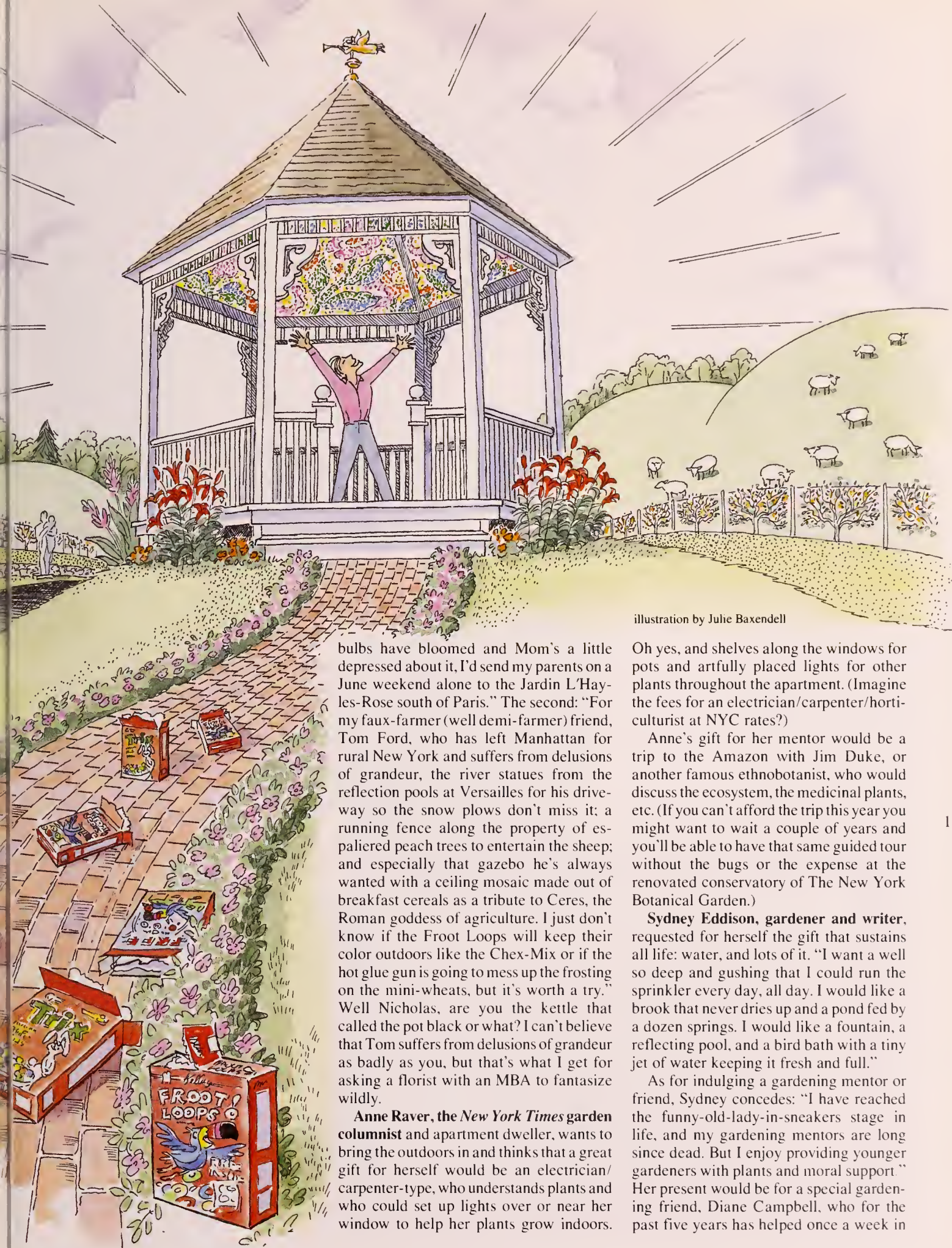


illustration by Julie Baxendell

bulbs have bloomed and Mom's a little depressed about it, I'd send my parents on a June weekend alone to the Jardin L'Hayles-Rose south of Paris." The second: "For my faux-farmer (well demi-farmer) friend, Tom Ford, who has left Manhattan for rural New York and suffers from delusions of grandeur, the river statues from the reflection pools at Versailles for his driveway so the snow plows don't miss it; a running fence along the property of espaliered peach trees to entertain the sheep; and especially that gazebo he's always wanted with a ceiling mosaic made out of breakfast cereals as a tribute to Ceres, the Roman goddess of agriculture. I just don't know if the Froot Loops will keep their color outdoors like the Chex-Mix or if the hot glue gun is going to mess up the frosting on the mini-wheats, but it's worth a try." Well Nicholas, are you the kettle that called the pot black or what? I can't believe that Tom suffers from delusions of grandeur as badly as you, but that's what I get for asking a florist with an MBA to fantasize wildly.

Anne Raver, the *New York Times* garden columnist and apartment dweller, wants to bring the outdoors in and thinks that a great gift for herself would be an electrician/carpenter-type, who understands plants and who could set up lights over or near her window to help her plants grow indoors.

Oh yes, and shelves along the windows for pots and artfully placed lights for other plants throughout the apartment. (Imagine the fees for an electrician/carpenter/horticulturist at NYC rates?)

Anne's gift for her mentor would be a trip to the Amazon with Jim Duke, or another famous ethnobotanist, who would discuss the ecosystem, the medicinal plants, etc. (If you can't afford the trip this year you might want to wait a couple of years and you'll be able to have that same guided tour without the bugs or the expense at the renovated conservatory of The New York Botanical Garden.)

Sydney Eddison, gardener and writer, requested for herself the gift that sustains all life: water, and lots of it. "I want a well so deep and gushing that I could run the sprinkler every day, all day. I would like a brook that never dries up and a pond fed by a dozen springs. I would like a fountain, a reflecting pool, and a bird bath with a tiny jet of water keeping it fresh and full."

As for indulging a gardening mentor or friend, Sydney concedes: "I have reached the funny-old-lady-in-sneakers stage in life, and my gardening mentors are long since dead. But I enjoy providing younger gardeners with plants and moral support." Her present would be for a special gardening friend, Diane Campbell, who for the past five years has helped once a week in

Dear Santa,
I Want it All!!

Sydney's 35-year-old garden. "More than anything, Diane yearns for a greenhouse. I would give her one that attaches to the house so she could live, work and play in it all winter long. I can imagine her nurturing hundreds of seedlings and raising tender exotics with huge patterned leaves and curious flowers. Her greenhouse would have a misting system and benches — everything that a gardener could possibly want — and a chair so she could sit on January afternoons and admire her handiwork." What a wonderful way to extend the gardening season throughout the year.

Gregory Long, president of The New York Botanical Garden, also asked for a deep new well in the country, so next time we have a drought like the one we're going through in 1995: "I would like to water my new orchard with a vessel more capacious than a teacup!" Gregory's gift would be for Beth Straus, who has done so much over so many years for The New York Botanical Garden, and deserves a big fine potager by Rosemary Verey. Not at Beth's house, however, where she already has a beautiful one of her own design, but at the New York Botanical Garden for everyone in the world to enjoy. Mizuna and mibuna and sprouting broccoli and fava beans and red climbing spinach by the yard. What a treat!

Adam Lifton-Schwerner, garden designer and foreman of gardeners at the New York Botanical Garden, recently moved into a new home. "The front of my property houses the main part of my garden: vegetable and perennial gardens. The garden abuts a busy street. If I could have any gift, it would be a stone wall, a dry laid fieldstone wall about 3½ feet tall to enclose the whole front yard. And I'd like it to be full of holes just big enough for me to plant rock garden plants in it."

Adam says he would like to give a greenhouse to his best gardening pal, his Dad. Adam recounts that his Dad was the first to garden with him as a teenager and then later as a young man. "Although he isn't a driven gardener, he does enjoy tropical plants and would love to have a place that is warm and tropical in the winter."

Ken Druse, garden writer and photographer, also asked for a stone wall 200 feet long and 3 feet high, a mature hedge in the variety of his choice, and the use of a back hoe for at least one month. He would also like to expand his library with copies of *The New York Botanical Garden Encyclopedia* and *The Royal Horticultural Society's Encyclopedia*.

Ken would offer his mentor a long and

I want a well so deep and gushing that I could run the sprinkler every day, all day. I would like a brook that never dries up and a pond fed by a dozen springs.

happy life and for his gardening companion, the best tractor, chipper, shredder that money can buy and a couple of truckloads of manure, compost and top soil. It sounds like the makings of a fabulous garden, and I'd love to see the plant list!



Elsie Doherty, secretary at the New York Botanical Garden, who tries to emulate her mother's gardens in the city and country, writes that her gift would be for her mother. "In my mind, gardening was very old-fashioned and a sure sign of being poor when I was growing up in Hawaii in the '50s. Old-fashioned because it was my mother, an immigrant, who grew the flowers and vegetables. Poor, because we didn't buy our vegetables at the store and foraged for fiddleheads, tree ferns, bamboo shoots, and whatever else we could find.

It took me years to appreciate the fact that we always had cut flowers, fresh

vegetables at the table, and what are now considered delicacies as everyday food. I'd like to tell my mother that she was way ahead of her time and "everyone is doing it" now and send her the biggest basket of seeds of flowers and vegetables she never had a chance to see and grow." A simple and most tender gift!

Jane Pepper, president, Pennsylvania Horticultural Society, says that the question brought to mind a special birthday gift she received in May from a teenage nephew. "It's a hand trowel inscribed: Jane — with love from David — May 1995. David lives in Scotland, home of many family members who I wish lived around the corner from Media, Pa." The idea of having your family around to share or even partake in one's favorite pastime is a wonderful tribute to family!

Deirdre Larkin, gardener, The Cloisters Gardens, tells us, "Since my gardening life has been spent in public gardens in New York City, what I would most like is a garden of my own in the country. I like the Delaware Valley, which is slate country, so there would be plenty of stone for paths and raised beds. I'd also like a pond to fringe with yellow flags, and a little willow plantation to provide for my trellises and arbors. A meadow to make hedgerows around would be good — and a piece of old orchard." Deirdre would like to give her sister, who already has the garden in the country, four 10-foot rose brick walls to enclose half an acre or so of her kitchen garden, to keep out the deer she's heard about. Good luck!

Joseph Kerwin, as the coordinator/author of this article: My wishes are simple like most of the participants' (except Nicholas!). I have a garden in the heart of New York City, which most apartment dwellers would die for, *except* it's overrun with stray cats and an occasional squirrel. I have spent three years trying to find a solution but to no avail. As an animal lover, my wish is to find homes for each of the cats (approximately 24) where they can roam freely without causing any problems or damage for themselves or others. Once a home is found for the cats I would transform the garden into a green oasis to shield me from the daily hustle and bustle of the city.

The person I would most like to honor with a gift is Lillian Blanthorn, who gave me my first plant 30 years ago. (My story is similar to Judy Zuk's tale.) After receiving dozens of plants from Lilie I thought that I should return the favor, so I dug a maple seedling out of the woods and brought it to



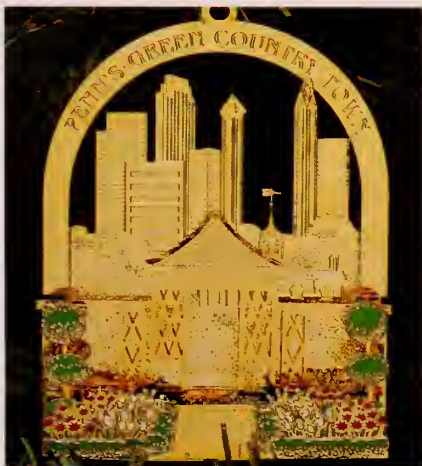
illustrations by Julie Baxendell

Lilie. We searched her garden for a place to plant it. Lilie felt the woods would be best for such an invasive tree, whereas I felt a more prominent space near the edge of her garden would be a better location. After

I'd like to tell my mother that she was way ahead of her time and "everyone is doing it" now and send her the biggest basket of seeds of flowers and vegetables she never had a chance to see and grow.

Lilie explained to me the shortcomings of the maple and seeing it had little effect on me, she came up with a compromise and planted it in the middle. Well in no time the tree became the dominant feature of the garden at the expense of the rest of the plants. Lilie has in the last few years become an avid traveler, and I wonder if my tree hasn't driven her from her garden. So, my gift to Lilie is an arborist to remove the tree or just to prune it out so she can increase her selection of perennials, and if she likes the tree the way it is, a trip around the world with Judy and Mrs. Walhart. (Judy, Lilie's a member of BBG.)

Joe Kerwin is the manager of the Enid A. Haupt Conservatory at the New York Botanical Garden. This Victorian glasshouse is currently undergoing a \$24 million renovation of the structure and its exhibits and will reopen in early '97.



THE PENNSYLVANIA HORTICULTURAL SOCIETY'S 1995 Holiday Collectible

The 18th Century Garden of the Pennsylvania Horticultural Society, located at 325 Walnut Street, has become a familiar Philadelphia landmark. This year Strawbridge & Clothier has chosen to have this beautiful garden recreated as a holiday collectible in bright gold-finished metal accented by three enameled colors. The finely detailed three-dimensional piece depicts the garden, the Chinese Chippendale arbor and gazebo with Carpenter's Hall and the Philadelphia skyline behind.

This limited-edition collectible is available only through Strawbridge & Clothier and the Pennsylvania Horticultural Society will receive 20% of all sales.

Limited Edition

Pennsylvania Horticultural Society 18th Century Garden Ornament
Made exclusively for Strawbridge & Clothier

Available only at all S&C stores or by calling 1-800-824-2424

The ornaments retail for \$20.00 (\$4.00 benefits PHS)



A profusion of chile gifts including honey simmered with Thai hots until the heat permeates the sweet; a terrific glaze for meat and poultry.

SALSA CLAUS

by Libby J. Goldstein

Chile Mania

Heat, chile heat, is hot! People plant chile patches. Foodies share the latest news about restaurants and their hot sauces that singe the palate and flood the brain with endorphins. Serious obsessives collect hot sauces, and may actually use them. Chiles are even hot on the Internet. Chile collections at the Harvest Show have become botanical wonders as community and individual gardeners grow more varieties every year. Having grown and harvested all those chiles, you've got to do something with them like creating presents for the chile-heads on your list.

Dried Chiles

Drying chiles is the easiest way to preserve them. Ristras or chile strings make

really nice gifts. I do mine the easy way. Using fairly heavy green thread and a largish needle, I push the needle through fresh chile stems. When I've got through all the chiles, I make a hanging loop in the thread and hang my ristra up to dry. For presents, just add a ribbon or raffia bow and hanging loop.

Of course, you can dry chiles without stringing them up. Many thin-skinned chiles like Mirasol, de Arbol, Thai, and Pili Pili will dry right on the kitchen counter, or you can spread them on newspaper in any relatively dry place, preferably out of the light to keep their colors bright. Store them in a closed bottle or Ziploc® bag.

To make your own chile powders, grind the dried chiles (stems removed) in a coffee grinder, food mill, food processor or use a mortar and pestle. For hot stuff, grind the

seeds with the chiles. For flavor without quite so much heat, remove the seeds and as much of the placenta as you can. Store the powders in little jars with tight covers or corks. You can give your friends a collection of chile powders, or you can combine various chiles with herbs and spices and package them as dry rubs for meat, poultry and fish or chili con carne kits. For a really special flavor, toast the dried chiles on a griddle or in a large iron frying pan over high heat for just a minute or two before grinding.

Mike Bowers' Dry Rub for Sirloin

- 1 Tbs. ground cinnamon
- 1 Tbs. freshly ground coriander
- 1 ½ tsp. hot pepper (Mike uses cayenne. I prefer yatsafusa and sometimes habanero.)



The author adds one Tbsp. of habanero or other seriously hot ground chile to a quart of bird seed to keep raiding squirrels off the bird feeder.

1 Tbs. good quality hungarian paprika
1 Tbs. sugar
1 Tbs. salt

Mix spices, dredge meat until well coated.

Mike's recipe will do four 12-ounce strip steaks. Multiply the amounts in his recipe by eight for a nice little bottle of steak rub for your favorite beefeater.

Rib Barbecue Seasoning with a Mexican Influence ("Tex-Mex Rib Rub")

8 Tbs. sweet paprika
2 tsp. black pepper
2 tsp. cayenne or other hot ground chile
4 tsp. dry mustard
4 Tbs. brown sugar
8 Tbs. ancho or pasilla powder
4 tsp. garlic powder
4 tsp. ground cumin
4 tsp. onion powder
4 tsp. ground achiote seeds (optional)

Combine all ingredients well and store in clean, dry screw-top jar.

When you're seeding chiles, don't pitch the seeds. Save them, toast them in a very hot, dry frying pan shaking the pan the whole time, grind them and store them in a closed jar. They're a traditional addition to sauces, salsas and moles, rather nutty and nice, not seriously hot.

Smoked Chiles

Smoked chiles give the simplest sauce a really special flavor. Chipotles, smoked red ripe jalapenos, are incredibly expensive, but if you have a grill or a smoker, you can make your own. While you're at it, you can smoke any chile in the garden. Do not

smoke chiles indoors. The fumes can be really dreadful; although they probably will drive vertebrate pests like squirrels right out of your smoking hut.

Chipotles (one pound of chipotles)

10 pounds red jalapenos or other chiles. If you don't have 10 pounds, use whatever you have.
Fruit tree chips and or
vine prunings and or
hardwood chips hickory, oak, or pecan (traditional in Mexico and Southern Mexico) or just experiment.

Discard any soft or damaged chiles; wash the pods and remove the stems. Put the peppers in a single layer on a very clean grill rack. (It's a good idea to get a new rack and use it only for chile smoking if you plan to do a lot.)

Start two small fires on each side of the grill with charcoal briquettes. Keep the fires small.

Soak the wood in water and put it on the coals so it will burn slowly and smoke a lot. Open the barbecue/smoker vents a little to allow just enough air to keep the fires smoking. Do not expose the pods directly to the fire. They might dry unevenly or even burn. You want to dry the pods slowly, absorbing the smoke flavor.

Checks the pods and the fires every hour, moving the pods around on the grill, but always away from the fires. It can take up to 48 hours to dry jalapenos completely. If necessary, let the fires burn through the night. (When they're done the pods will be hard, brown and light in weight.)

Remove the chiles from the grill and cool. Store them in Ziploc® bags or very clean dry glass jars with tight lids in a cool and dry place.

Chili Powder (for Chili con Carne)

1 part ground dried hot chile like pequin, de arbol, red savina
1 part ground smoked jalapeno (chipotle), ancho or pasilla chile
5 parts ground smoked NuMex chiles
2 parts homemade garlic powder
1 1/2 parts toasted cumin seeds, ground
1 1/2 parts ground dried oregano

Optional

1/2 part one or more of the following ground spices suggested by various Chile-Heads on the Internet: cardamom, cinnamon, toasted coriander seed, toasted fennel seed, fenugreek, nutmeg
1 1/2 parts cocoa powder (my favorite)

This recipe can be made in varying quantities from 1/8 tsp. to a pound.

Homemade Garlic Powder

1 head garlic

Separate the cloves of garlic and peel them. Slice very thin. Spread on a baking sheet and dry several hours or overnight in a 160° oven with the door slightly open. The slices should be quite crispy when done. Grind in a spice mill or coffee grinder.

Chiles Borachos (Drunken chiles)

Storing chiles in alcohol is one of the easiest ways of preserving and sharing your chile harvest. Ann Swan's sherried chiles are famous. They win prizes at the Harvest Show, and sell out at the Herb Society sale. That's why Ann heat processes hers. My drunken chiles are not famous so I don't process them. Drunken chiles and the chile-flavored liquor are great additions to soups, stews and sauces. Add a note to the gift bottle that suggests topping off the container with more liquor if the recipient uses more liquid than chiles.

I've used all sorts of left-over liquor on my drunken chiles. Once I packed a pint jar with serranos and filled it with the remains of a bottle of gin. A friend at the Restaurant School had to do a Mexican meal. He took my whole jar of serranos and created the "Mexatini." Each drink had a drunken serrano in the glass and 1/2 a teaspoon of the hot gin for seasoning.

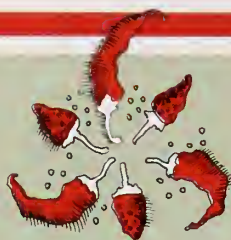


photo by Martin Jackson



Most hot chiles have very thin flesh and float to the top of chile jam without lots of work. Chile jelly (green) is much easier.

pasta or drizzled over bread. Do not leave chiles in oil for longer than it takes to flavor the oil. Oils are not good preservatives for chiles or, for that matter, for herbs and veggies.

A Variation on Caprilands Chile Oil (1 quart)

3 6-in. sprigs rosemary
3 sprigs thyme
1 tsp. dried lavender flowers
2 garlic cloves, peeled
12 peppercorns
6 chiles (or more to taste)
1 quart olive oil (I love the flavor of Goya brand)

Heat the oil to 300°; carefully add the herbs, garlic, pepper and chiles. Cook for 4-5 minutes. Remove from the heat and let steep for an hour or until you like the flavor and heat. Strain into clean, sterilized containers and cap or cork.

Chile Jelly

This is real jelly without flecks of pepper floating in it. Try experimenting with single chile jellies and with chile combinations.

Chile Jelly (5 half-pints)

2 cups hot peppers, stemmed
(and seeded if you want to reduce the heat)
1 1/2 cups white vinegar (or Herbed Chile Vinegar)
4 cups sugar
1/2 tsp. butter
3 oz. (1 packet) Certo
1 or 2 drops food coloring (optional)

Sterilize the jars and leave in hot water until ready to fill. Prepare two-piece canning lids according to manufacturer's directions.

Put the peppers and half the vinegar in a food processor or blender and blend until smooth. Pour into a large non-reactive pan. Put the rest of the vinegar in the processor or blender and pulse to get any leftover chile bits. Add to the saucepan with the sugar.

Bring the mixture to a rolling boil and boil for one minute. Remove the pan from the heat. Press on the mixture with a potato masher or wooden spoon to get all of the chile flavor you can. Put three layers of damp cheesecloth or a jelly bag in a large bowl. Pour in the chile mixture; tie the bag

My favorite cold remedy is chiles in brandy. The chiles (the hotter the better, I've even used habaneros) are packed in a sterile, dry glass jar filled with brandy, capped and left in a cool place for several weeks at least. When I feel the first symptoms of a cold coming on, I pour myself a shot of brandy and take it to the bedroom where I sit down on the bed, knock back the brandy and lie down (if I haven't already fallen down). Between the alcohol and capsaicin in the chiles, cold viruses don't have a chance.

By the time the chiles and alcohol have aged to a nice heat and warmth, the chiles may look a bit old. Not to worry. It's an esthetic problem and easily solved. Pour the chiles and liquor into a food processor, puree, pour into a decorative sterile bottle and cap: instant hot sauce.

Peppers in Vinegar and Actual Pickled Peppers

If there's no liquor in the house, I use my chiles in

Herbed Chile Vinegar

1 pound small hot chiles
white vinegar
1 bunch cilantro with roots (don't forget to scrub the roots clean), chopped (optional)
2 long stems oregano, preferably with flowers
2 sprigs thyme (try oregano or nutmeg thyme)
2-4 large garlic cloves, crushed and peeled

Sterilize one or two jars. Divide the chiles and herbs between the jars and add the vinegar. Close the jars and store the vinegar in a cool place. Taste for heat and flavor weekly. When the heat suits, filter the vinegar through coffee filters into sterile

containers and cap. For really clear vinegar, let the filtered vinegar stand for a week and filter again before filling your sterile gift jars.

Penn State's Pickled Peppers (9 pints)

4 pounds fresh long hot peppers
(jalapeno, banana, hungarian, mirasol, NuMex, pasilla, etc.)
3 pounds sweet red and green peppers, mixed (I'd just use more hot peppers)
5 cups 5% vinegar
1 cup water
4 tsp. canning or pickling salt
2 Tbs. sugar
2 garlic cloves

Sterilize the jars and leave in hot water until ready to fill. Prepare two-piece canning lids according to manufacturer's directions.

Wash and dry the peppers. Put the peppers on a grill over a gas flame or in a 400° oven 'til the skins blister and cool in a paper bag for 5-10 minutes. Remove the skins. If smaller peppers are left whole, slash 2-4 slits in each. Quarter large peppers.

Flatten small peppers. Fill clean jars leaving 1/2-inch head space. Combine the vinegar, water, salt and garlic in a non-reactive pan. Bring to the boil over high heat, reduce the heat and simmer for 10 minutes. Remove the garlic. Pour the hot pickling liquid over the peppers leaving 1/2-inch head space. Put on the lids and tighten well. Process in a boiling water bath for 10 minutes.

Chile Oils

Brush chile-flavored oils on meats and vegetables as you're grilling, in salad dressings and instead of plain butter or oil in bread and muffin recipes. Try them on

or cheesecloth closed and hang over the bowl. Let all of the liquid drain into the bowl without pressing on the solids. Discard what's left in the jelly bag.

Return the liquid to the saucepan; add the butter and bring to a full rolling boil. Quickly stir in the Certo; return to a full rolling boil; boil for one minute. Remove the pan from the heat and skim off any foam. If you don't like the color of the jelly, add one or two drops of the appropriate color or colors of food coloring.

Fill the hot sterilized jars leaving 1/8-inch head room and close with the prepared lids. Process in a boiling water bath for five minutes. Serve with cream cheese or use as a glaze for roasting meat and poultry.

So, there it is; lots of lovely ways to turn an abundant chile harvest into fiery festal offerings.

Libby J. Goldstein has been growing chiles at Southwark/Queen Village Community Garden since 1976, but she's only been an official Internet Chile-Head for two years.

More Info

Hard Copy

Salsa Lovers Cook Book, Susan K. Bollin, Golden West Publishers, Phoenix, AZ, 1993

Foods of the Sun, Ann Lindsay Greer, Harper & Row, New York, 1988

Hotter than Hell, Jane Butel, HPBooks, Los Angeles, CA, 1987

Red Hot Peppers, Jean Andrews, Macmillan Publishing, New York, 1993

The Pepper Garden, Dave DeWitt and Paul W. Bosland, Ten Speed Press, Berkeley, 1993

The Whole Chile Pepper Book, Dave DeWitt, Nancy Gerlach, Little, Brown & Co., Boston, 1990

And a magazine totally dedicated to the *Capsicum*.

Chile Pepper, PO Box 15308, North Hollywood, CA 91615-5308. Call 800-959-5HOT (5468) for subscriptions or 800-359-1483 for a free sample copy.

Get More Info

On-Line

One of the best places to learn everything you always wanted to know about chiles is the Chile-Heads World Wide Web page put together by Michael Bowers. It has an excellent library of chile pictures (some of them made by putting actual chiles on a scanner and scanning them into the computer) and the most extensive list of chile seed sources I've ever seen. You can get virtually anywhere in the hot world from the Chile-Heads home page.

<http://www.netimages.com/~chile/>

Michael Bowers also runs an Internet mailing list where you can find and participate in hot discussions (but not "flames") about growing peppers; seed and plant

sources and exchanges; exotic varieties; storage and preservation; recipes; hot sauces and lots of other stuff. Subscribe to the list by sending a one-line message containing the command SUBSCRIBE to the listserv address:

chile-heads-request@chile.ucdmc.
ucdavis.edu

To get all the messages as one hot fix a day, send the message:

SUBSCRIBE chile-heads-digest

to

LISTSERV@chile.ucdmc.ucdavis.edu

Everyone on the list will get it, and some people will actually answer you.

Chile Seed Sources from Chile Heads

Sources for Chile Seeds and Plants Note: Highlighted sources have additional information such as varieties, price, etc. If you have any other sources, please submit a mini-review to me. Thanks!

mikeb@radonc.ucdmc.ucdavis.edu

- Delta Farm
3925 N. Delta Hwy.
Eugene, OR 97401
503-485-2992
(sells plants, list \$1)
- Enchanted Seeds
P.O. Box 6087
Las Cruces, NM 88006
505-233-3033
- * High Altitude Gardens
P.O. Box 4619
Ketchum, ID 83340
800-874-7333
- * JL Hudson, Seedsman
P.O. Box 1058
Redwood City, CA 94064
Old Southwest Trading Co.
P.O. Box 7545
Albuquerque, NM 87194
503-836-0168
800-748-2861
- *● The Pepper Gal
Box 23006
Ft. Lauderdale, FL 33307
305-537-5540
Fax: 305-566-2208
Pepper Joe's, Inc.
1650 Pembroke Road
Norristown, PA 19400
- *● Plants of the Southwest
Rt. 6, Box 11A
Santa Fe, NM 87501
505-471-2212
(sells plants as well as seeds)
color catalog \$3.50
- * Redwood City Seed Co.
P.O. Box 361
Redwood City, CA 94064
415-325-SEED
- Seeds of Change
P.O. Box 15700
Santa Fe, NM 87506-5700
505-438-8080
- * Seed Savers Exchange
Rt. 3 Box 239
Decorah, IA 52101
(source for heirloom/rare varieties)
- * Shepherd's Garden Seeds
6116 Highway 9
Felton, CA 95018
408-355-6910
- * Tomato Grower's Supply
P.O. Box 2237
Fort Meyers, FL 33902
813-768-1119
(more than 30 kinds of chiles)
Totally Tomatoes
P.O. Box 1626
Augusta, GA 30903-1626
803-663-0016

● Author's favorite sources

* Available for reference in the PHS Library

PRESERVING OUR RESOURCES:

The Care of a Gardener's Hands

What do this gardener's hands and cow's teats have in common? Winter. Chapped skin. Creams and lotions.

Ten years behind a desk followed by moving to a farm gave new meaning to the words chapped, dry, cracked. My hands were so uncomfortable last winter that a squirt of hand lotion was champagne to my skin. I was concerned; I had big plans for the upcoming garden season and, I didn't relish another similar winter fate.

I set out to arm myself with remedies. I had already limped through one winter with Vaseline Intensive Care, good ole petroleum jelly and my son's prescription for diaper rash at a cost of over \$20 a tube. I should have checked with those dairy cows at the outset.

Gloves are weapon number one. Mine usually vacation in the garage during the summer, but this past year we started a new garden on old pasture land. Two nasty weeds leaped from the soil: horsenettle (*Solanum carolinense*) and redroot (*Amaranthus retroflexus*). Horsenettle has spines and redroot rough prickles, making extraction painful without gloves.

Thick cowhide gloves are my favorite especially for winter, ones where the fingers inevitably dissolve, letting in the cold, water and mud, feeling like wet socks in one's boots. Intolerable, nagging, worthless. Duct tape, the silver, super sticky stuff we all use to secure the world, is my solution. I tape the ends of the fingers that wear before they acquire holes, enabling me to use them for years sometimes, water and time molding them perfectly to my hands.

Cowskin is the most popular leather, its weight varies from heavy to medium and light, and glove prices range from \$7 to \$20. Pig and goat skins come only in medium and light weight. I've yet to decipher the different durability codes for gloves; price is a good guideline. Most gloves give reinforced palms high billing, although fingers are my priority; weeding being such a high percentage of the job. Cotton gloves almost disintegrate immediately and require an application of duct tape upon purchase, before you use them. I never buy the cotton ones but use lots of the \$2 brown or black cotton jersey gloves to wear inside skin gloves in winter. They offer extra protection and you can load up on lotion before putting them on, adding extra TLC.

Gloves are available from garden centers, hardware stores and everywhere in between. I did find Woman's Work (1-

800-639-2709), a Maine company whose origins 10 years ago started with a glove tailored for women's hands and work.

Lotions are relief. Relief for cows and gardeners alike. The most quoted panacea for ailing hands is produced for cow teats. Bag Balm. Bova Cream. Dairy farmers and gardeners swear by Bag Balm: its consistency - that of axle grease; its smell - antiseptic; its price - under \$5; its availability - Southern States or Agway; its merit - it works. Its consistency and smell are sizable drawbacks easily overcome by

Eucalyptus is a natural bug repellent, which affords it high rating in summer when the fragrances of drugstore options call the bugs by name.

slathering it on under jersey gloves, then tucking them into leather ones. The extra protection is well worth the forethought when it comes time to peel the wet gloves from cold fingers. Dermatologist Charles J. Van Meter, Jr., M.D., prefers Bova Cream. It is also used by veterinarians as a remedy for chapped cow teats. It's not greasy, not antiseptic, and is similar in consistency to lotions like Jergens or Vaseline Intensive Care. Its price and availability are about the same as Bag Balm.

Drugstore shelves and cosmetic counters have mind-boggling arrays of lotions to choose from. Most are for short-term relief versus healing, and prices reach as high as \$30 at the cosmetic counters. Eucerin is my favored drugstore selection. A pediatrician recommended the thick cream years ago for my children; it worked well on beautiful tender new skin, and it works well for damaged hands. It's available in lotion also. With gardeners in mind Burt's Bees sells a hand salve (Farmer's Friend) developed by its owner, herb gardener Roxanne Quimby. Its price is comparable to Bag Balm; its ingredients are natural - olive oil, almond oil and beeswax with loads of herbs and eucalyptus. Eucalyptus is a natural bug repellent, which affords it high rating in summer when the fragrances of drugstore options call the bugs by name. It's available at Longwood Gardens in Kennett Square, PA (610-388-6741); L.L. Bean, Freeport, ME (1-800-943-2326) and Gardener's

Supply, Burlington, VT (1-800-315-4005).

"Get out of water" is physician Van Meter's advice. I almost laughed: clean hands and water are synonymous for me. Water, however, is one of the most destructive things for our skin and Van Meter's choice for cleaning up is Cetaphil. A non-soap formula, you can use it without water, and it's a drugstore item. The liquid form really does work without water, but it takes getting used to. I am still unsure if my hands are really clean and once applied I feel compelled to rinse with water *before* I use a towel.

Burt's Bees also makes a soap (also called Farmer's Friend). Its power to loosen dirt comes from a natural abrasive, cornmeal. Rosemary, another chief ingredient, has natural antibacterial and antifungal properties for cuts and scrapes. Pumice stones are another alternative when attacking tough dirt; they're known for helping to remove tough, dead skin - spelled calluses. I don't buy them; my calluses are hard-earned and necessary.

Clean hands for me do not include nails and cuticles (those thin layers of skin at the base of your nails) but cracked cuticles haunt me. To soften them, soak fingers in soapy water or rub extra lotion into them; then, use a cuticle pusher (available at your local drugstore) to gently push them back. Manicure experts say nails should be filed in one direction to strengthen them; I rarely have nails to speak of, but filing willy nilly weakens them. Stained nails occasionally distress me when important events arise. I have soaked my nails in water mixed with Clorox and lemon juice (a dermatologist's nightmare) when warranted. Lemon juice masks the odor of Clorox, which will follow you around for hours. When all else fails and picking quantities of basil for pesto leaves a deep green effect, I resort to nail polish and temporarily cover the problem.

The tip I loved best to mitigate dry hands, came from Van Meter. He thinks those who insist on wrecking their hands should make efforts to reduce damage wherever possible, starting in the kitchen. When cooking, clean your hands and slather on Crisco or cooking oil. Many foods have fatty acids, for example garlic and tomatoes, which are hard on sensitive hands, those already damaged by outdoor work.



by Cheryl Lee Monroe

Gardener's hands;
they all deserve TLC.

photo by Mary Lou Wolfe

The fat (oils are fats) provide a barrier between you and the fatty acid without affecting your cooking.

All is not said and done without contemplating the creation of your own concoctions. There are books with recipes for lotions, soaps, creams and so on. I liked Stephanie Tourles, *The Herbal Body Book* (Storey Communications, Inc., 1994). I began with those recipes to best understand the basic ingredients in the myriad of products available. Tourles's book lists ingredients, their values and sources. In the backyard of many *Green Scene* readers is Nature's Wonderland*, a 70-year-old Philadelphia company dedicated to natural remedies. All manner of dried herbs, ingredients such as cocoa butter and a panoply of natural products including soaps and lotions, can be ordered by mail.

I've done my homework, I've exhausted the possibilities, I'm fully armed and peeking around the corner at winter. I intend to feel no pain; only endure the wrinkled noses of my children as I apply TLC to my extremities.

Author's Gift Basket Wish List

One basket suitable for later use in the garden, heaped with the following:

Cetaphil, one for each sink;
Bova Cream, Bag Balm, Eucerin,
Farmer's Friend Hand Salve in
sufficient amounts to equip
every sink, car, the nightstand,
pocketbooks and the garden
basket;

Nail files, preferably metal to outfit
the same spaces as listed above;
A complete nail kit with my name
on it;

An assortment of gloves so I can
always find two to match;

Gloves for each child so they don't
make off with mine;

Three rolls of duct tape so I can
always locate one;

A day off from the kitchen to avoid
fatty acids;

Spring.

*Nature's Wonderland: In area code 215 dial
215-925-3336; all others 1-800-523-9971.

Cheryl Lee Monroe is a horticulturist by trade,
gardener by love, and resides in Myersville,
Maryland.

I still remember conversations about books that Julie Morris and I had 20 years ago, as well as articles she wrote about books during the early years of *Green Scene*. Julie, who is now horticulturist at Blithewold Mansion & Gardens in Bristol, Rhode Island, was the librarian at the Pennsylvania Horticultural Society in the early '70s. I remember the feeling of excitement and challenge Julie conveyed when she talked about *This Green World* by Rutherford Platt (Dodd, Mead & Co., N.Y., 1942; see box) or *Reading the Landscape* by May Theilgaard Watts (Macmillan, N.Y., 1957). I particularly remember a quote Julie included in the first issue of *Green Scene*, September 1972, that she had plucked from *The Romance of Plant Hunting*, Capt. F. Kingdon-Ward (Edward Arnold Co., London, 1924):

"After an early breakfast, I raced up the ridge. The bamboos flung water at me, the little porcelain gentians with wonderstruck blue eyes stared after me, but stayed not. On and on, till the forest came to an end, and the mountain ridge grew steep and difficult, and the wind caressed like the blade of a razor. Now I was leaping from rock to rock on the shattered cliff, till brought up short by the hassocks of dwarf Rhododendron which covered the northern slope; only then did I fling myself down to explore and collect."

Was Julie drawn to librarianship because she so loved the magic of books or did she become a book lover as she took on her work as librarian. I do know that sharing the love of **reading** books adds a bit more mortar to friendship than some other shared interests. Our long-distance phone calls always include time to discuss what we're reading.

A book Julie mentioned rereading lately was the personal gardening memoir of Celia Thaxter, *Island Garden* (Houghton Mifflin, Boston, 1894, reissued 1988; paperback Oct. '95). And a recent gift that she sent along was *A Wider Giving: Women Writing after a Long Silence*, an anthology edited by Sondra Zeidenstein. One of the pieces in the book is an excerpt from *Parrot's Wood* by Erma Fiske, whose first book *The Peacocks of Baboquivari* was published when she was 65 years old. Fiske was an ardent birder who devoted herself to volunteer bird banding, which took her to South and Central America and to Florida, away from her Cape Cod home after she was widowed. After reading the excerpt from *Parrot's Wood*, I ordered three copies of the book, although I would have preferred

BOOKS AND OUR GREEN WORLD



by Jean Byrne

to order seven. Gifts. It's that time of year.

Bibliophiles take gift exchanges seriously. It's not the \$\$ value of the book one gives, but the possible meaning and satisfaction for the recipient. *Parrot's Wood* is now available for under \$8, and I'd consider it a gift of far greater value than a combined gift of the top five books on the *New York Times* Best Seller list.

After reading a good part of Gutenberg's

I cannot live without books.

Thomas Jefferson

Elegies: The Fate of Reading in an Electronic Age by Sven Birkerts while on vacation I began to wonder if no more books were to be printed, which ones would we strive to keep on our shelves; which ones would we stock in our public libraries if they still existed; which precious copies would we share with others and which wouldn't we let out of our sight under any circumstances.

Good book recommendations involve an understanding of the recipient's taste, temperament, interest, intellect and their willingness to invest the large block of time required for reading books as opposed to reading the paper, magazines or going to the movies. And sometimes our own passion about a book will lead others to explore something they might not have considered otherwise.

A gift of a book well chosen satisfies the mind and the spirit; it can be savored and shared. Richard Bitner's query (November 1993 *Green Scene*) to a group of 34 gardeners about which books had influenced their gardening tastes and interests not only brought a thoughtful response from the people he wrote to, but it obviously touched a nerve in many of our readers because more people wrote favorable letters to us about that article than any other, and more people stopped me to talk about their own favorite books. It occurred to us that many gardeners and horticulturists probably have a hot wish list of books they'd like to

acquire along with their longed-for plants. Since we've considered no-holds-barred gift wish lists elsewhere in this issue, we thought that people might want to know what a group of bibliophiles either wanted to receive or would recommend for gift giving during this holiday time. Who better to query than the Pennsylvania Horticultural Society's Library Committee. Query them we did; most of the Committee were able to reply in the short time we gave them before deadline, and we've printed their responses below.



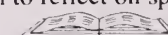
Martha Morris, a book collector and chair of the PHS Library Committee; chair, Duke University Library Advisory Board; earned masters' degrees in Library Science and Medieval English History replied:

"*Gardens for Small Country Houses**, Gertrude Jekyll and Lawrence Weaver, Country Life, London, Second Edition, revised and enlarged, 1913. This is a marvelous classic with beautiful photographs and detailed planting plans. Included are various gardens that demonstrate the relationship of garden to house followed by sections on topics such as balustrades, walls, yews, water in the garden, pergolas, gates, statues and even thatched roofs! It was among my first purchases and inspired me to collect books about English country gardens. Perfect book for an Anglophile."

"*Portraits of Philadelphia Gardens**, Louise and James Bush-Brown, Dorrance & Co., Philadelphia, 1929. Another classic of interest especially to all who love Philadelphia. It includes the most noted gardens of the day with photographs and well-written descriptions. My favorite photo is one of poppies and foxgloves on the terrace at Allgates in Haverford — it has everything: ivy-covered walls, balustrades, terraces, urns and a lily pool with two great bronze frogs."

"*Secret Gardens Revealed by Their Owners*, Rosemary Verey and Katherine Lambert, Bulfinch Press Book, Little Brown and Company, 1994. What a wonderful new book. It offers a glimpse into hideaways, some of which are formal and others natural and overgrown. This book *must* be on my gift list because it includes 'The Secret Garden Recreated' (complete with 40-ft. pool, stone urns, and 32-ft. birch trees) by Gale Nurseries, Inc. for the 1992 Philadelphia Flower Show."

Martha included a P.S.: "This was a terrible task . . . how difficult to choose only three books. I had a miserable time deciding but such fun to reflect on special books."



Jane Leake who is on the Board of the Ludington Library in Bryn Mawr wrote:

"As you can see these are not 'how-to' [books] but they do help a sleepless night, and I have enjoyed them. You put a limit of three, but I have many more. What a fun evening thinking about books."

"*The Education of a Gardener**, Russell Page, Collins, Great Britain, 1961. *Green Thoughts**, Eleanor Perenyi, Random House, New York, 1981. *Vita Sackville-West's Garden Book** (edited by Philippa Nicolson), Atheneum, New York, 1968. *Gardening for Love**, Elizabeth Lawrence, Duke University Press, Durham, North Carolina, 1987. *The Essential Earthman**, Henry Mitchell, originally published by Bloomington-Indiana University Press, 1981 (now available in paperback). *Onward and Upward in the Garden**, Katherine S. White, Farrar Straus Giroux, New York, 1979."



As she penned this list garden historian **Elizabeth McLean** was planning to leave in 30 minutes to begin a trip through the "Northwest Passage" on a converted Russian scientific ship, starting in Greenland and escorted by an ice cutter.

"*Gardens of Philadelphia and the Delaware Valley**, William M. Klein, Jr., photography by Derek Fell, Temple University Press, Philadelphia, 1995. Anyone interested in Philadelphia gardens should own this. It shows why Philadelphia has been such a center of horticulture for 200 years and describes all the gardens open to the public.

"*Color in Your Garden**, Penelope Hobhouse, Collins, London, 1985. The best book on color in the garden ever — even beats Gertrude Jekyll! Hobhouse deals with the nature of color before discussing and illustrating the effects, with stunning photography. While some plants shown won't grow in Philadelphia, the examples are "zoned." The author is a superb plantsperson, and it shows.

"*The American Gardener, A Sampler*, Allen Lacy, editor, Farrar, Straus, Giroux, 1988. From Thomas Jefferson to Henry Ward Beecher, to Anne Raver, a good read on a variety of subjects: making a garden, fragrance, pests, and more. Perfect for winter reading while we wait for planting time. *American* writers on *American* gardens and gardening.

"And of course I really love to browse in *The Gardeners Dictionary**, Philip Miller, printed for the author, London, 1759. Where else will I read six folio pages on pinks and the cultivation thereof."



Elizabeth Farley is an officer of the Philadelphia Botanical Club and was formerly assistant director of the Arboretum

illustrations by Julie Baxendell



Too much of a good thing is wonderful.

Mae West

of the Barnes Foundation; she asked us to pass on to St. Nicholas her request for the following books:

"*A Child's Garden of Verses* by Robert Louis Stevenson, with illustrations by Jessie Willcox Smith. This was a favorite when I was a child and I also read it to my sons when they were small. Many of the poems are in the garden while others are evocative of gardens. Alas, our copy seems to have disappeared so I would like a replacement.

"To add to my collection of botany books I would like to have *The Botanists of Philadelphia and Their Work** by John W. Harshberger published in Philadelphia in 1899. This book is out of print but is available occasionally from rare book dealers."

Kitty Lapp, who volunteers for the 18th Century Garden, as well as serving on the Library Committee, is an enthusiastic daffodil fan who has planted over 100,000 bulbs in her woods. She told us:

"The top priority on my list for giving would be *A Complete Dictionary of Practical Gardening**, Alexander McDonald, gardener [sic], in two volumes, R. Taylor & Company, 38 Shoe Lane, 1807. I am always amazed when I look up something and find so much information in this dictionary that is appropriate for today. There are beautiful hand-painted flower prints throughout both volumes. The recipient of this gift will be overjoyed; the giver may have to mortgage the farm. If you want a look, try the Library copy in the Lloyd Collection; I'm lucky enough to own a copy, too.

"*Weeds of Lawn and Garden**, John M. Fogg, Jr., University of Pennsylvania Press, Philadelphia, 1945. Fogg was the late and much loved professor of Botany at the University of Pennsylvania and later direc-

tor of the Arboretum of the Barnes Foundation. *Weeds* has excellent illustrations by Leonie Hagarty [now Leonie Bell, a fine rosarian and *Green Scene* contributor]. Much, perhaps too much, has been done in the development of chemical eradication of weeds since this book was written. I prize it for identification. (I bought mine at a church fair.)

"*The Pennsylvania Gardener**, Derek Fell, Camino Books, Philadelphia, 1995. A helpful gift for a budding gardener with a new home or contemplating buying or building."



Toni Brinton, president of the John Bartram Association, says she could not live without these three references and thinks they'd be valuable gifts to like-minded gardeners:

"*The Standard Cyclopedia of Horticulture**, L.H. Bailey, six volumes, Macmillan Company, New York, 1914. This is the forerunner to today's *Hortus Third*, but with fabulous illustrations and great descriptions. I nearly always look up any plant in this book. Obviously out-of-print, but I purchased it at a PHS Book Sale*. Often there might have been a name change by the perspicacious taxonomists, but there are good synonyms in *Hortus Third*.

"*Newcomb's Wildflower Guide**, L. Newcomb, Little Brown & Co., Boston, Mass. 1977. This is the paperback that goes in my pocketbook/pack, when I'm in New Hampshire or travelling anywhere in the eastern United States. Anyone can use this book because of its clear means of identification.

"For the propagator (although I keep promising to stop all this propagation): Once you believe that you can produce it by seed, cutting, or division, rather than actually pay money to buy that coveted plant, it's rather hard to resist. But you need a good guide. The book I use to determine which method of propagation is best is *The Reference Manual of Woody Plant Propagation* by Michael A. Dirr and Charles W. Heuser, Jr., Varsity Press, Inc., Athens, Georgia, 1987.

"There are people with whom you share the same sensibilities about gardening: Tovah Martin's book gives me that wonderful sensation of shared joy in her book about fragrant plants for indoor gardens: *The Essence of Paradise*, Little Brown & Co., Boston, Mass., 1991.

"Another book that I look at frequently is *100 Great Garden Plants* by William H. Frederick, Jr., Alfred A. Knopf, New York, 1975. It's written by a gardener/landscape architect who lives and works here in the Delaware Valley and gives advice about

plants that do well here. It's been recently reissued."



Alice Doering, landscape designer, wrote selecting: *"The Gardener's Eye and Other Essays"*, Allen Lacy, Atlantic Monthly Press, New York, 1992. For sheer joy this is the book to read. It's entertaining while being informative.

"The Manual of Woody Landscape Plants", Michael Dirr, 4th edition, Stipes Publishing Company, 1990. As a landscape designer and a garden hobbyist this is my all-time favorite and most-used book. Most woody plants and many of their cultivars are described thoroughly, including propagation information."

PHS's assistant librarian Jane Alling, currently working on her M.S. in Library Science at Drexel University, joined in with the Library Committee to list books high on her list of gift giving.

"Portraits of Philadelphia Gardens" by Louise and James Bush-Brown, Dorrance & Co., Philadelphia, 1929. I first discovered this book as a landscape design student at Temple's Ambler campus. The assignment was to design a garden on the ruins of a former Houston estate in Chestnut Hill, and this book was a valuable resource. I have also used it for research on "Allgates" the home of Mary Helen Wingate Lloyd, whose portrait hangs above my desk in the PHS Library.

"A Child's Garden of Verses", Robert Louis Stevenson, M.A. Donohue & Co., 1916. Many editions available at bookstores from a \$2.25 Dover paperback to an \$18.95 hardcover.

The world is so full
of a number of things,
I'm sure we should all
be as happy as kings.

This book was given to my father when he was a little boy by his older sister. And she continued to give gift books to more than 35 nieces and nephews through their teenage years. Sometimes when I'm dusting, I'll take the book from the shelf and read a few verses.

"The Secret Garden", Frances Hodgson Burnett, Lippincott, Philadelphia, 1962. Many editions available at bookstores from a \$2.95 paperback to a \$25 hardcover. A wonderful gift for children and adults. It's perfect for a rainy Sunday afternoon."



L. Wilbur Zimmerman, a certified judge for the American Orchid Society since 1955; PHS chair 1977-1980; currently PHS Hotline volunteer and serves on Publications and Library committees. He writes:

"Of the hundreds of horticultural books I have owned, many of which I've discarded or passed along here are three that I will never part with:

"Encyclopedia of Cultivated Orchids", Alex D. Hawkes, Faber and Faber Ltd., London, 1965. As an orchid specialist, I refer often to Alex Hawkes's book which covers the orchid family in greater breadth than any other. Nothing that preceded it has been anywhere nearly as comprehensive, nor has anything come along since its

*When I get a little money, I buy books
and if any is left I buy food and
clothing.*

Erasmus

publication to supplant it. Like every other book on a family of plants it has suffered the ravages of time from the taxonomists. One of its most unique features is a valuable pronouncing glossary of names.

"America's Garden Book", Louise and James Bush-Brown, Charles Scribner's Sons, 1939. Despite its age it is still of great value because it deals comprehensively and from intimate personal experiences with our local growing conditions. A first book to consult even though varietal lists are somewhat out of date.

"The Story of Gardening", Richardson Wright, Dodd, Mead & Co., Inc. 1934. An erudite man ranges worldwide and tells the story of gardening clearly and interestingly. A knitting together of a diverse history. Read it first, then branch out to more extensive coverage for specific areas."



Jane Alling told us that PHS horticultural intern Duane Binkley in the PHS Shows Department haunts the library, poring over the shelved books and checking out the new incoming books. Alling knew she'd spotted a true book lover and suggested that Duane be included in our survey. Duane wrote the following:



"Reference books are my weakness. Within the past year, three 'reference-esque' books have caught my eye and made their way into my steadily growing collection.

"Although I already have several good books on houseplants, Tovah Martin's *Well-Clad Windowsills*" (Prentice Hall, New York, 1994) quickly found a place on my bookshelf. Martin, staff horticulturist at Logee's Greenhouses in Danielson, Ct., profiles an impressive collection of houseplants, classifying each plant according to its light requirements. Handsome color photographs and friendly, insightful text make this book a real treat.

"One of the best photographic reference

books in my collection is *The Eyewitness Handbook of Trees*, Allen J. Coombes, Dorling Kindersley, Inc., New York, 1992: this tome boasts more than 600 color photographs of more than 500 species of trees. Part of the Eyewitness Handbook series, it's an excellent gift for tree lovers of all ages and levels of expertise, and a 'must have' for any horticulture or landscape architecture student enrolled in a class on woody plants.

"Annals for Connoisseurs", Wayne Winterrowd, Prentice Hall, 1992, originally came into my life as a holiday gift, and it still holds a special place in my heart. It introduced me to *Dolichos lablab*, *Verbena bonariensis* and *Ammi majus*, three of my favorite garden inhabitants. Winterrowd chronicles more than 50 species of antique or unusual annuals, accompanies them with a handful of colorful photographs and offers sage advice on how to use each species to its best advantage in the garden."

*Editions of these books are available at the PHS Library. Most are circulating copies (for members) but a few are noncirculating and may be seen at the Library.

**The PHS Book Sale is scheduled for early September: Save the books you want to discard and donate them to the Book Sale. Be sure to come browse for special treasures.

From This Green World*

by Rutherford Platt
Dodd Mead & Company
New York, 1943

Behind the poetry of the landscape are the mechanisms of dramatic events. . . the whirr of a studded pollen grain through the air; the report of a bursting seed; the tinkle of sap in the tubes of a tree trunk; the whisper of air and water being converted by chlorophyll; the twang of red rays ricocheting from the petal of a cardinal flower; the muffled sounds in roots expanding with the power of dynamite.



The landscape is a vast system constantly in action . . . this natural world is thrilling in the way it works. I am not thinking so much of the poetry and melody, or of reflecting on a tree or flower as you might on a masterpiece in an art gallery. I am thinking of the mental stimulation, of the value of information, of accuracy of expression, of the feeling of freedom, and sheer entertainment — all around us and available at little expense and bother for anyone who will only take a look. . . .

*A copy is available to members through the PHS Library.



IN THE GARDEN

Shaking the Mid-Winter Blues — The challenge of overwintering garden plants



by Kathleen A. Mills

In their spring enthusiasm gardeners buy, snip and propagate every exotic tender perennial they find. The goal at our house is to fill every terra-cotta pot we own with an assortment of delights such as pentas (*Pentas lanceolata*), angel's trumpet (*Brugmansia arborea*), lantana (*Lantana camara*) and oleander (*Nerium oleander*). As summer winds down, pride in our treasures wanes and panic sets in. What are we going to do with them all over the winter? Gardeners hate to make offerings to the frost king, so we try to overwinter them.

Disciplined people take cuttings in August and September to insure a well-rooted healthy plant in a portable container to keep neatly over the winter. If you're not fortunate enough to be disciplined or to have a greenhouse, you rearrange your life and your furniture to accommodate your plants. Like most people we find ourselves scurrying around in October washing pots and killing bugs; then the processional to the third floor begins. Each year the pots get heavier. We're not sure if it's because the plants are growing or we're just getting older.

The grooming process

Before you bring your tender perennials indoors cut them back in size. At least get rid of any new soft growth — the type insects and disease love to feast on. Don't worry about cutting blooms, the decrease in light curtails blooming anyway. Provide one last watering, with a soluble fertilizer and check for pests. Plants with a bad insect infestation or a disease problem will not survive the winter. Overwintering tender perennials is tricky without a greenhouse. The best you can do is keep them alive until spring. Lower your expectations from growth to survival.

Each year my husband Tom and I haul our favorite tender plants to the third floor of our home. The light is as good as mother nature can provide through a window, and the temperature is a cool 60°. Less light and cooler temperatures mean less watering and less fertilizer. Our plants seem to enter a pseudo-dormant phase. Once a week we climb the stairs to water and check carefully for pests. Plants growing in low light push soft, leggy growth, the kind bugs are attracted to. This pseudo-dormant state allows for minimal growth and helps the plants survive.

Problems don't occur until late winter when light levels and plant reserves are at their lowest. We've had scale, mealy bugs and white fly all living together. Occasionally a fungal problem, but with infrequent waterings, this is rare.

To combat insect problems isolate the infected plant from its neighbors before the insects move on. Usually a few weeks in isolation and frequent waterings with the shower head beats the insects to death, or at least into submission. To fight fungal prob-



lems remove infected leaves and water only when absolutely necessary. Provide just enough water to keep the plant alive and hope that will be too little for the fungus to survive. If you just have to spray, *never* spray plants indoors. Even if you are only using an insecticidal soap, take the plant outside.

Our plants do well until late February through mid-March. I'm not sure if the problem is environmental conditions or the decrease in the attention the plants get around Philadelphia Flower Show time. Extra T.L.C. like opening the windows on that warm February day keeps them going until April or May when we begin the processional down the steps.

Some tips we've found that work

For four winters we have successfully overwintered our *Brugmansia* 'Charles Grimaldi' in the basement, much as you would dahlia tubers. We purchased it in a five-gallon container one spring and planted it in the ground. It quickly grew to 5 ft. in height and dazzled us with its beautiful soft peach, trumpet flowers. It was far too big to move to the plant penthouse so we dug it up, threw it in a pot, and left it to its fate. We watered it once at Christmastime when we were in a benevolent mood.

The next spring we planted our 5-ft. sticks and within six weeks were graced with a 7-ft. blooming brugmansia. We counted 45 blooms one week in July that year. The next fall we again dug it up, threw

it in the basement and forgot it. This summer we cut back the old wood, fearful of a 12-ft. man-eating brugmansia and in July we were again treated to a wonderful display on a 6-ft. plant. We have also had luck overwintering our *Mandevilla splendens* in the basement.

Another overwintering challenge was our hardy water lily (*Nymphaea* 'Pink Beauty'). A treat to watch grow and bloom in our backyard barrel, overwintering meant finding a way to bring it into the house, minus the barrel. The past winter we banished the water lily to the basement, setting the dish pan the roots are growing in into a larger basin. After a final watering the plant was set near a basement window. With very little light and even less care, we look forward to another summer of beautiful pink blossoms.

Proper overwintering methods do exist and have been written about extensively. If you love plants but don't have the time to do things perfectly, there is hope. Plants have amazing adaptive abilities and a strong will to survive. Finding out just how far you can push a plant is a great learning experience which replaces the mid-winter blues with a spring explosion of growth and a summer full of color.

Reading List

The following books are available in the PHS Library:

Rodale's Encyclopedia of Indoor Gardening, Anne M. Halpin, ed., Rodale Press, Emmaus, Pennsylvania, 1980.

This book has a great pest and disease section that will help with identification as well as cures.

The Movable Garden, Ruth Shaw Ernst, The Globe Pequot Press, Connecticut, 1991.

A great book with chapters on changes container plants go through when moved indoors in fall and outdoors in spring, as well as pest and disease controls.

Kathleen Mills is PHS Shows administrative manager.



A Garden for the Homeless

*People's Emergency Center Community Playground:
An Oasis for a West Philadelphia Neighborhood*



by Judith C. McKeon



Far left: In a tranquil moment, People's Emergency Center mom Loretta Long feeds her baby Dominic on their outing to the PEC community playground in West Philadelphia. Three-year-old Faheem Richards shares their bench.

At left: PEC moms and kids plant vegetables and flowers in raised gardens at the PEC community playground located in the 3900 block of Warren Street in West Philadelphia.

Eleven-year-old Donald Deans is keenly aware that it hasn't rained much this summer and his newly planted street trees are struggling to survive. He has adopted the young maple trees planted in the sidewalk pits in the 3900 block of Warren Street along the front entrance of the People's Emergency Center community playground. Donald enjoys the watering ritual he shares with recreation facilitator, Khalil Shearlds. On watering days, they haul out the hoses and hook up one end inside the playground while Donald drags the other end out to the street. When Khalil gets the water pressure just right, Donald gives each tree a long slow soaking. Donald has come to care about the trees; they're *his* trees. He's also learning to take pride in himself and in his family struggling to survive losing their home.

When Donald and his mother lost their home earlier this year, they moved into temporary housing at the People's Emergency Center (PEC). Located at 3902 Spring Garden Street in an attractive renovated factory building, PEC is one of the city's leading providers of shelter and services to homeless women and their children. The success of PEC and its model programs for helping families like Donald's has a lot to do with the energy and vision of its executive director, Gloria Guard. Guard

accomplished a long-term goal in 1990 when PEC moved into its new home, a four-story, \$2.5 million modern facility that provides emergency, transitional, and permanent housing to 600 families annually.

Gloria Guard and staff immediately began nurturing another aspiration: to transform six abandoned lots in nearby 3900 block of Warren Street into a safe community playground. The development team envisioned a secure environment with sturdy age-appropriate equipment, a grassy field for running and sports, vegetable and flower gardens, an infant play area, a water play area, and seating for mothers and their babies. In such an environment families who have lost everything can be nourished and energized on their journey back to a home of their own. Like the metamorphosis from deserted factory building to model agency, the creation of PEC's community playground is a story of coalition building in which every available resource is tapped. Gloria Guard assembled an army of supporters who fashioned the dream into reality.

Hundreds of volunteers including students, horticulturists, Junior League members, church groups, and residents of the community were inspired to play a part in the development of the playground and gardens. When the playground project

caught the imagination of major league baseball player, Danny Jackson, he made a unique pledge: During the 1993 season, the former Phillies pitcher vowed to contribute \$100 per strike out to the playground; he eventually donated about 25% of the \$200,000 budgeted for completion of the project. Backing more often came in the form of individual contributions of \$5 or \$10. Private funds were raised one dollar at a time and combine corporate, foundation, and individual contributions.

With the support of then City Council member, Lucien Blackwell, the city-owned lots were transferred to PEC in 1990. Undaunted by the constraints of a tight budget for an awesome construction project, PEC staff called on the Pennsylvania National Guard headed by Captain Richard Fraker, to clear the lots of debris. Truckload after truckload of junked cars, sinks, tires, rusted fences, chunks of concrete, dead trees, and miscellaneous rubble was hauled away before any construction work could begin on the lots.

As plans for the development of the playground took shape, landscaper Wicky Dayton, owner of Dayton Lawn and Garden, recruited a committee of volunteer horticulturists to design and install colorful seasonal gardens with plants donated by local nurseries. Chaired by horticulturist



Four-year-old Moyane Beveron flexes her muscles while planting flowers in the PEC community playground flower beds.

Alexis Margraff, the committee includes local nursery professionals, commercial landscapers, public garden horticulturists, and a university instructor.

In September 1994, horticulture committee members gathered plants, assembled their landscape crews, and converged at the playground to create a garden. Before the greening was completed, mountains of soil and mulch were moved, sod laid, and truckloads of nursery stock planted. In a child-friendly garden, plants that bite or scratch like roses and barberry were excluded in favor of sweeps of soft-leaved big ears, bright-colored heads of moonshine yarrow, joe pye weed, autumn joy sedum, sky blue spires of Russian sage, and graceful stands of bright daylilies and tough ornamental grasses. Kid-safe and city-tolerant flowering trees and shrubs planted include Henry Hicks swamp magnolia, Japanese snowbell, viburnums, hydrangeas, and Duke Gardens' plum yew.

When the People's Emergency Center community playground opened its doors on October 1, 1994, a rainbow coalition of supporters came out to celebrate the accomplishment. Among them was Congressman Chaka Fattah who declared the playground "a jewel in our district." Vera Royster, a neighbor, board member, and enthusiastic supporter of the community playground, describes the new recreational facility as simply "beautiful," and acknowledges that a secure playground with supervised activities is an asset to the neighborhood.

PEC is responsible for the garden maintenance and trash pickup in the playground. Few parks are as immaculate, an observation echoed by Lucinda Conix, a neighborhood member of the playground, "I definitely like the playground because it's clean; it's neat; and it's close." Mrs. Conix and her baby enjoy their trips to the playground; "I like getting cooled off in the sprinkler; looking at the pretty flowers; and watching my baby play."

Landscaper Wicky Dayton expertly maintains the playground gardens and lush green turf areas. On a golden afternoon in May, I found her deadheading alliums and pulling a few weeds in the raised planting bed of viburnums, Foerster's feather reed grass, and catmint that softens the length of security fence at the Warren Street front. We admired a sweep of creeping Chatahoochee phlox, which drapes its blue-eyed

carpet of flowers over a knoll in the garden. Both of us have participated in the playground development; observed the vacant lot transformed into an oasis; and we still marveled at the miracle.

On a sunny morning in June, I returned to the playground for the first annual flower and vegetable planting day. Moms, kids, and staff loaded babies into carriages and hauled hand tools and packs of vegetables and flowers the half block around the corner to the playground. In prepared raised beds at the back of the L-shaped park, kids and moms dug in and planted rows of tomatoes, peppers, brussels sprouts, and pole beans; marigolds and petunias served as colorful edging plants. The kids discovered something about the joy of gardening, found lots of worms, and got their hands dirty before going off to play on the slides, climbing equipment, and seesaw with moms and teachers.

Like Donald Deans's experience of learning to care for himself as he learns to care for the street trees, the playground and gardens nourish each child with the healing province of gardening, while providing a safe green environment in which they can grow and play. The staff and volunteers of the People's Emergency Center encourage mothers and children to join together in recreational family activities. Neighbors, friends, and supporters are invited to join the playground, enjoy the gardens, and participate in supervised play and community events. PEC mother Bernadette Stinson, delighted with the opportunity for her children to play, garden, and enjoy the green sanctuary sums up the experience. "As long as my children are happy, I'm happy. And they seem to be very happy."

Judith C. McKeon is author of *The Encyclopedia of Roses* recently published by Rodale Press, Emmaus, Pa., 1995. She is chief horticulturist and rosarian at the Morris Arboretum of the University of Pennsylvania and a PEC community playground horticulture volunteer.

You're Invited

Interested in joining the PEC community playground? Contact Roz Thomas, playground coordinator at (215) 382-7523.

PEC Community Playground Horticulture Committee

Alexis Margraff, Chair
Stephanie Cohen, Temple University
David L. Culp, Sunny Border Nursery
Wicky Dayton, Dayton Lawn and Garden
Susan LeBoutillier, Waterloo Gardens
Judith C. McKeon, Morris Arboretum of the University of Pennsylvania
Elayna Singer, Morris Arboretum of the University of Pennsylvania
Paul Thomas, Naturescapes

Some Plants at PEC

Perennials and Grasses:

Achillea 'Moonshine' - Moonshine yarrow
Calamagrostis arundinacea 'Karl Foerster' - Foerster's feather reed grass
Eupatorium purpureum - Joe Pye weed
Nepeta x mussinii - catmint
Phlox 'Chatahoochee' Chatahoochee creeping phlox
Perovskia atriplicifolia - Russian sage
Sedum 'Autumn Joy' - Autumn Joy sedum
Stachys 'Big Ears' - lambs ears

Trees and Shrubs:

Cephalotaxus drupacea var. *harringtonia* 'Duke Gardens' - plum yew
Hydrangea paniculata
Magnolia virginiana 'Henry Hicks' - swamp magnolia
Styrax japonicus - Japanese snowbell
Viburnum setigerum

PEC Community Playground Sponsors

Junior League of Philadelphia
William Penn Foundation
Connelly Foundation
PNC Bank
Conrail Corporation
Terri Lynne Lokoff Foundation
Jean Block Charitable Trust
Danny Jackson
Knight Foundation
Gladwyne Presbyterian Church
First Presbyterian Church of Philadelphia
Helen G. C. Beatty Trust
Henrietta Tower Wurts

Chickens: The Engines of Entropy



by Jane Reed Lennon

photo by Jane Reed Lennon



A Buff Sex Link laying hen taking the air on a winter's day.

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I enjoyed reading about Margery and James Howe's vegetable garden and old farm in the May/June (1995) *Green Scene*. Alarm bells rang, however, when I saw mention of hens in the Howe's future. I wanted to warn those Howes about chicken depredations and the foulness of fowl. **Most important, I want to tell them to build the chicken yard first.**

My 12 hens are confined to a large yard, which they have entirely denuded of all greenery with the exception of two or three large stalks of pokeberry (*Phytolacca americana*) and several big old viburnums growing on a steep bank at one side of the yard. Every other living plant has been pecked off or rooted out, dragged around, jumped on, pulled apart and trodden flat by the hens. Not only have they cleared their own yard to bare earth, they have processed all the garden and kitchen waste that might have gone on a compost heap.

Chicken action reduces the vegetable trash to usable garden soil in short order. The chickens rush to the gate each time it opens, and wait anxiously for the wheelbarrow to tip a new load of greens. They pick over the load snatching up bugs, leafy greens and weed seeds. If no fresh load of compost is delivered to them they scratch through the partially decayed organic matter of previous loads, turning, mixing and breaking down the fibrous pieces into rich loam liberally mixed with the highly nitrogenous chicken manure.

Ideally a chicken-powered compost yard is located on a gentle slope. Enter and dump the compostable materials at the top. The chickens and gravity will deliver the finished product to the bottom of the yard. There you can shovel perfectly manured, mixed compost into a wheelbarrow and take it to the garden.

Hens are omnivorous. As well as pro-

cessing all compostable material delivered to them they act as an insect patrol. Our hens are allowed out of their yard most evenings. They rush out the gate and scatter over the lawn and gardens, snatching at bugs, worms, slugs and other small life forms. If they catch one insect in 10 attempts each hen probably eats about 100 insects per evening, but my guess is their success rate is higher. As dusk falls they stroll home to roost, so chasing is not necessary. By dark the hens are arranged in sleepy lines in the hen house.

In the morning the chickens are given fresh spring water and laying mash (ground corn and soybeans). By noon a dozen big brown eggs have been laid in the nest boxes and the hens are back outside turning compost in the yard.

If the chickens roamed the garden all day long, there would be no garden. Chickens can scratch away neatly rowed



Barred Rock hens looking for insects in the chicken yard. Note the fence on top of the wall: hens can climb and fly!



A crater left by one loose hen. *Iris cristata*, which covered this area, was scratched right out of existence by the dust-bathing hen.

vegetable seedlings in less time than it takes to say "shoo!" They love dust bathing and will reduce a flower border to a dust bowl in an afternoon. They are curious and will happily disbud an entire patch of anemones before they convince themselves that flower buds are not a caterpillar pupa.

As well as attacking the vegetables and insect kingdoms chickens by digging and scratching can dig out brick or cobble paving. Imagine a three-pound hen actually shifting a 15-lb. granite paver! If the chicken hopes to find a tasty bug in the crack it will move the cobble. Chickens can reduce walls to jumbled stone piles. First they dig at the base of the wall. Then they sit or

stand on top and wiggle. A batch of chickens swaying and bumping and fidgeting night after night, cause one stone to fall, then another, the walls begins to sag. Accelerated by fidgeting at the top and scratching at the bottom the wall comes tumbling down. This is entropy on fast forward.

Fowl are not welcome in most towns or close suburbs. But on a country property where they are permitted they can be a real garden tool, as well as egg producers. Chicken wire is light weight and easy to handle. A temporary chicken run can be erected on a piece of your real estate that is a future garden site. Chickens for land clearing! If the hens are confined to a small space they will strip it bare and dig and fertilize it at the same time.

After the first hard-killing frost the chickens at our farm are let out, all day, every day until early spring. They patrol the grounds scratching up mulch and pecking away. They move as a group into our raspberry patch, kicking the deep hay and leaf litter mulch around the berry canes, mining it for japanese beetle grubs. When they tire of a project they move along to other buggy sites. Poultry are an active part of our integrated pest management but

they have tiny minds and go off on tangents. Last year just before Christmas my young little yellow-berried holly was quite spectacular. I noticed several chickens hanging around it, that they were jumping or flapping straight up in the air, landing heavily and jumping again. Later when I walked past the holly I realized that they were jumping up to gobble the holly berries, and they had got them all. They also ate the holly berries off the Christmas wreath on our door.

On a free-range diet of seeds, berries, and bugs, supplemented with laying mash our hens continue to lay eggs all winter. Confined, even on a good diet most hens stop laying when the days grow short and dark. The hens wander and scratch and pick until we can't stand their proximity for another day, then we confine them to the yard, because it's spring and time for us to take over our garden.

Jane Lennon has been keeping fowl at Cherry-mont Farm for years. She is alternately charmed and infuriated by her feathered friends, but takes pleasure in the fact that her chickens, ducks and geese convert insect protein into eggs, pate and confit.

Between the Cracks



by Michael J. LoFurno



In an urban garden, space is often at a premium, and the desire to create a lush environment is often at odds with the need to create usable areas for sitting, entertaining, or just “getting around.” One simple solution that I have found to this problem is to use every “nook and cranny” — quite literally — for planting.

We often try to maximize limited space by using container gardening, wall gardening, even overhead gardening. But what about “pavement gardening?” What sort of things can be grown underfoot — between the cracks — in brick or stone walks, patios or courtyards?

Plant Choices

Actually, there are many plants suitable for pavement gardening, from the tightest of creepers to substantial “grasses” and perennial herbs.

Creepers

Close to the pavement surface, temperature and moisture conditions are very pronounced. Porous bricks in sun rapidly gain heat and transpire their moisture into the air, while those in shade are often moist and cool. It is this microclimate that determines which plants can successfully be grown close to the surface.

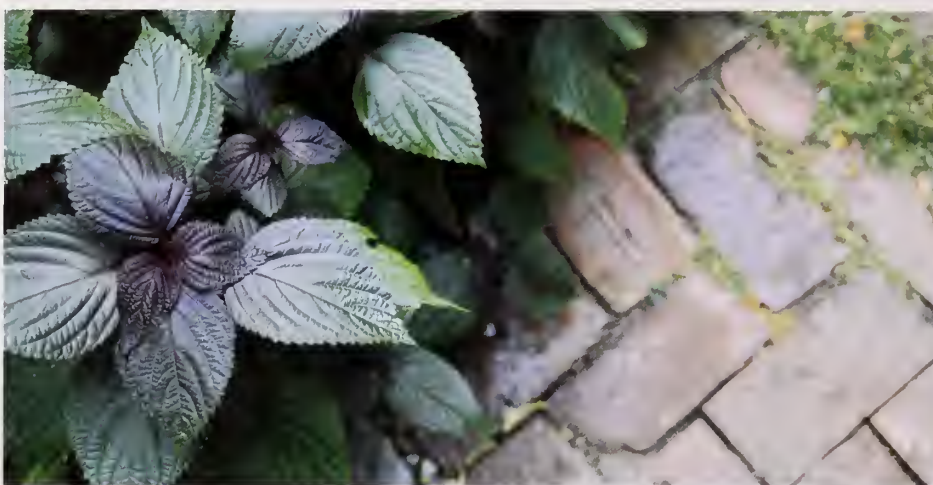
In shady areas, **mosses** can provide relief from monotonous expanses of pavement. Nestled in the cracks of wide-spaced brick, stone, or other pavers, moss creates a soft and vibrant effect, in a richness of green not common to flowering plants. In intimate gardens, the delicate structure of different moss species and their seasonal life stages can be particularly fascinating. For my own urban garden, I have collected mosses from various travels in the hinterlands, brought them home and stuffed them in the sand-filled cracks between the walkway bricks. This served as one of many ways to bring just a hint of the country to the city environment. The growth of moss can be promoted by the addition of aluminum sulfate or sulphur dust to the soil. (Both are available at most garden centers.)

Not every plant in my garden has been planted purposefully — many are volun-

Limited space in a city garden can be maximized by pavement planting. Here, blue-eyed grass (foreground), miniature pinks (mid-ground behind grass), and scouring rush (tall, tied plant to the right) soften the hard edges of a brick walkway.



The flannelly leaves of mullein, a biennial, form a rosette up to two feet in diameter.



The striking color of beefsteak plant complements brick paving and provides an exuberant summer and fall display.



Special finds and varied textures make an ordinary walkway more interesting. This area is ready for planting with miniature pinks and stonecrops.

teers. One of the more surprising volunteers to take root between the cracks has been the lovely *Mazus pumilio*. This diminutive figwort gives rise to tiny, exquisite flowers, pale blue with white throats, resembling a cross between a violet and a lobelia. This plant, which volunteered in my South Philadelphia garden, is considered rare in Pennsylvania. *Mazus* (a self-seeding annual) flowers in late April through June but

becomes raggedy after that and it is best to remove the plant once it has cast seed.

Another "underfoot" plant that has been successful in pavement cracks is one of the **miniature pinks**, (*Dianthus nitidus*). This prostrate perennial bears spotted rose-pink flowers, less than a inch wide, that float above the foliage on 3-inch stems. The flowers are borne intermittently throughout the last spring and summer. The plant holds

up particularly well under trampling, and spreads nicely, by seed or stolons, along the cracks. *Hortus Third* says that this pink is related to *D. alpinus* and is fond of limestone soils; that may explain its affinity for used brick in my garden path.

Grass-like "verticals"

While many turn their attention to the "New American" grasses such as *Miscanthus* and *Pennisetum*, the gardener with limited space may do well to rediscover one of our beautiful grass-like natives, **blue-eyed grass** (*Sisyrinchium angustifolium*). Although this iris can grow to 20 inches, in my garden path it is generally four to eight inches in height. It also spreads by seed and by rhizomes. Flower color can range from pale blue to violet. Although the flowering time is short, the dense clumps of deep-green leaves and near-black seed capsules are attractive throughout the summer months. Thinning of the new shoots yields robust clumps of flattened leaves.

Another "vertical" plant worth rediscovering for use in pathway plantings is **scouring rush** (*Equisetum hyemale*). This fern ally is a fascinating native plant often used in aquatic gardens. Be careful, though. Once this plant becomes acclimated to its new home, it can spread rapidly. Like blue-eyed grass, scouring rush is most attractive when confined to robust clumps. Depending on conditions, staking may be helpful to prevent the hollow stems from flopping over. *E. hyemale* can grow to four feet, although it seldom reaches three feet in my pathway; gardeners with concerns about this aggressive plant may want to consider using its shorter relative, the dwarf scouring rush (*E. scirpoides*), although this species may not "clump" as well as the former.

Bushy herbs

Another "volunteer" in the garden has been the **beefsteak plant** (*Perilla frutescens* 'Atropurpurea'). This mint sports striking dark maroon to purple leaves, up to six inches in length and four inches in width. It can exceed four feet in height and looks best in tight groups of three or more to create a bushy appearance. In full sun, the plant develops its deepest color. Like other mints, *Perilla* develops spikes of small flowers. These can easily be dried for use indoors, but I prefer to prune them off when they first emerge to appreciate the colorful and aromatic foliage more fully.

Any drive along our highways and back roads in late summer or fall includes views of Queen Anne's lace, black-eyed susan, goldenrod, and mullein. To the urban gar-

dener, these plants are as emblematic of the country as cornrows and apple orchards. Many of these wayside plants can be planted in a sunny perennial border, but for the urban gardener with limited space, only the last does very well in sunny pavement cracks — the towering **mullein** (*Verbascum thapsus*). This biennial's flannelly leaves form a dense rosette that gradually spreads to two feet in diameter its first year. The following spring, it rockets skyward, bearing golden flowers. The soft leaves, the biennial character, and the towering spike all make this "weed" an intriguing addition to the garden.

Seasonal Opportunities

Pavement gardening has all the opportunities for seasonal expression that ordinary gardening does. It provides for the early spring growth and flowers, such as

blue-eyed grass and *Mazus*. The summer-time exuberance of plants like *Perilla* can't be beat. The persistence of *Perilla* and mullein through the fall helps make the pavement garden a year-round asset. Although most of the plants mentioned here are not of interest during the winter months, consider the possibility of letting the pavement itself provide the interest. Accent pavers, special finds, and varied textures can help make an ordinary walkway much more interesting.

What's Next?

I'm going to try my hand at other plantings in the walkway cracks. A number of alpine or rock garden plants may prove successful. I haven't yet found the perfect stonecrop (*Sedum spp*) for pavement planting. The violets I've tried are a bit rambunctious, but some of the smaller varieties may

work in shady areas. A naturalist friend of mine has recommended *Sagina procumbens*. Nicola Ferguson's book *Right Plant, Right Place* (Summit Books, N.Y., 1984) has a list of suggested plants as well.

I've put away my bottle of Round-up®! Cracks filled with clump-forming grasses, dense moss, or other desirable plantings make it difficult for other "weeds" to find a space between the cracks.

Michael J. LoFurno, a registered landscape architect and professional planner, is a principal of Composite, a Philadelphia-based planning and design firm. LoFurno has received several awards from the American Society of Landscape Architects. Together with Stephen Maciejewski, he has won Best in Show in the Container Grown Vegetables, Fruits & Annuals section of the 1995 Harvest Show, as well as awards in PHS's City Gardens Contest.

Letters to the Editor

Butterflies

Your May/June issue's article about butterflies by Linda Young was greatly appreciated but contained a minor inaccuracy. Carole Stober, a letter writer from Glen Gardner, N.J., referred to the article's mention of "spicebush swallowtail larva on parsley." Spicebush swallowtail larvae feed on sassafras and spicebush, not parsley. The neat green and black caterpillars found on parsley are of the **black** swallowtail.

When I was an early teenager growing up in Lititz, Pennsylvania, I developed a keen interest in insect collecting and knew where every patch of parsley in my neighborhood could be found. One could always depend on finding the black swallowtail larvae there. Now my wife and I plant

several patches of parsley in our garden, some for us and some for the black swallowtails. **Gardening Tip:** If you don't have enough parsley to share with the butterflies and are lucky enough to live in the country where wildflowers abound, simply transfer the black swallowtail larvae you find on your parsley to the wildflower Queen Anne's lace, and it will happily feast on the alternate foodplant to eventually become a gorgeous black swallowtail butterfly.

I really enjoy *Green Scene* and read every issue cover-to-cover.

David L. Newcomer, M.D.
E. Petersburg, Pa.



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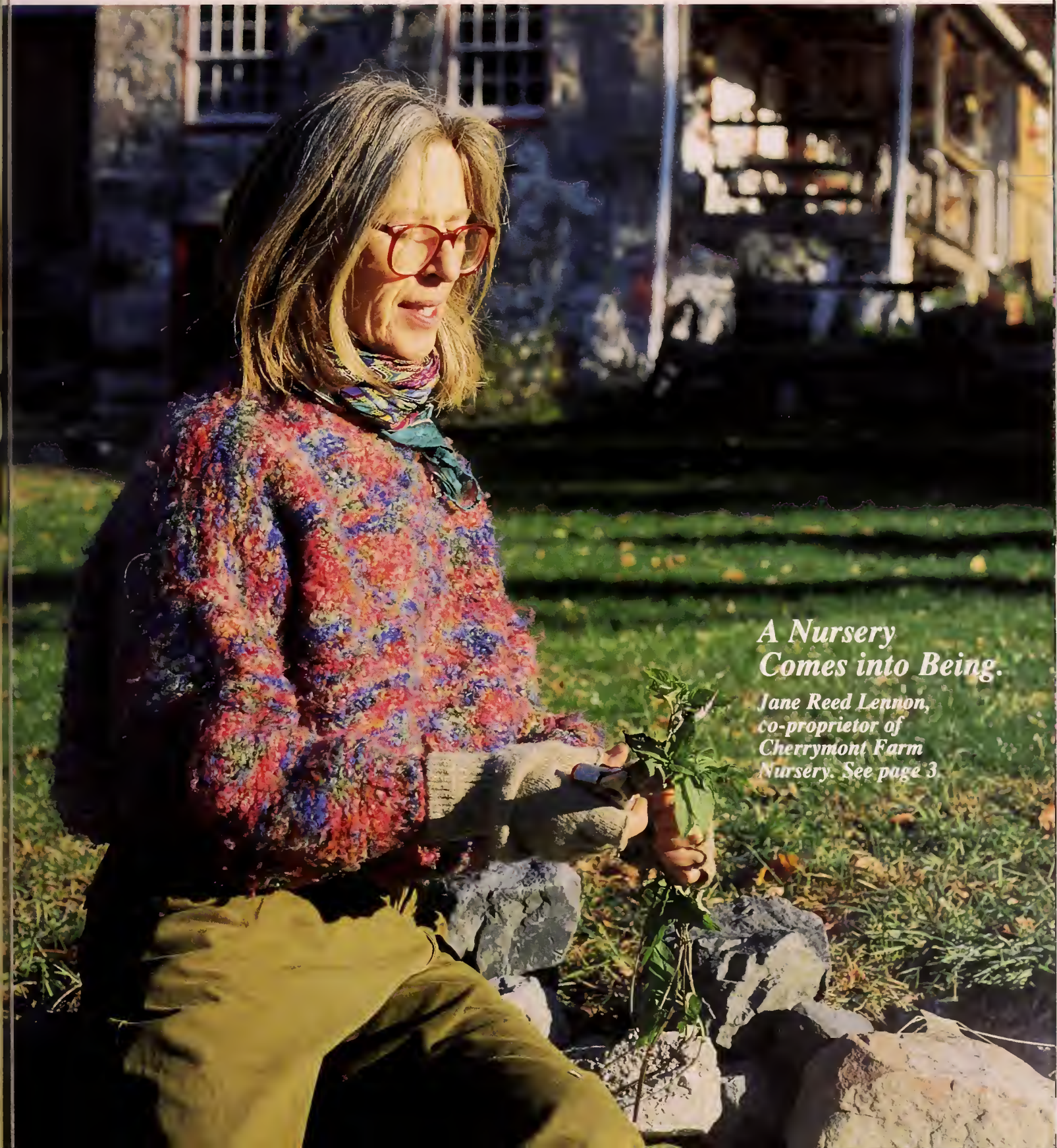
Dried or smoked chiles often have special names. From lower left a ristra of chiles pasillas (dried chilacas), chipotles (smoked red jalapenos), cascabelas, anchos (dried poblanos), guajillos and some chile seeds. See: Salsa Claus, page 16.
photo by Martin Jackson





GREEN SCENE

THE PENNSYLVANIA HORTICULTURAL SOCIETY • Jan./Feb. 1996 \$2.75



A Nursery Comes into Being.

*Jane Reed Lennon,
co-proprietor of
Cherrymont Farm
Nursery. See page 3.*



9.



26.

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The Pennsylvania Convention Center
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Presenting Sponsor: PNC Bank**

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Front cover: In the background is the old stone house Lennon and her husband Patrick Radebaugh bought and recently extended with a wooden addition (partially seen on left side of photo). photo by Mary Lou Wolfe

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in this issue

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Volume 24, Number 3 January/February 1996

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the green scene / january 1996

A Nursery Comes into Being

 by Jane Reed Lennon

*The author says the **only** thing nurseries have in common is that they grow plants. Lennon tells which nurseries influenced and inspired her and how she came to create Cherrymont Farm Nursery.*

Christopher Lloyd, the English gardener and writer of note, visited Philadelphia area gardens in September. I met him walking down a country road, from one garden to the next; we were part of a group of a dozen. When he asked me about my horticultural connections, I explained that I have a small herbaceous nursery nearby. Mr. Lloyd asked why herbaceous, and why had I chosen my particular piece of land. I didn't answer; Michael Bowell's garden came into view down the steep road bank and conversation switched to Michael's site history. I turned Mr. Lloyd over to Mr. Bowell, one fearless colorist to another. Lloyd loved Michael's garden. I've been thinking about the questions I didn't get to answer about my nursery and about others. Why is any nursery what or where it is?

I know my nursery is the sum of my interest, my site, and a bit from every nursery and garden I've ever visited. These bits might be plants, or attitudes, or ways of doing something. When I visit nurseries I realize the only thing they have in common is plants.

One hardware store and the next are different, one dairy farm is a little different from the next, but both are pretty close to a common model. Not nurseries! Nursery operations and their owners are remarkably individualistic, reinforcing the garden maxim, "if it works for you it's right."

This is an armchair visit to some memorable nurseries, past and present. This tour is a little autobiographical, but mostly horticultural.

Hilliers Nursery

I went to work at Hilliers Nursery, Winchester, England, from the Barnes Arboretum's program, at the suggestion of Gordon Tyrell. Tyrell taught plant propagation and maintenance courses at Barnes, and had been a student at The Royal Horticultural Society's Wisley Garden in Surrey, England. I very much wanted that sort of practical horticultural education. Quickly dating myself I must say that in 1969 Wisley did not admit women students.

Tyrell's alternative suggestion was to ask for a student/worker position at one of the famous English nurseries.

I wrote to several and received favorable replies. Again with Tyrell's help I chose Hilliers. Vast in size and scope, more than 100 years old, Hilliers, at the time of my student year, had the most extensive plant collection in the temperate world. The nursery included seven different growing locations, all around Winchester. The arboretum, at Jermyns House, Romsey, was

continued

photo of Cherrymont Farm Nursery field by Patrick Radebaugh



Nursery

115 acres planted as a living catalog of the fabulous Hilliers list. While I was very interested in the nursery I chose to be an arboretum worker, because I'd be exposed to the whole gambit of plants. The main propagation operation for the nursery was adjacent to the arboretum. I had plenty of opportunity to get experience and learn the general run of a propagation unit.

Hilliers was right at the brink of streamlining its operations, but while I was there they still grew a stunning variety of hardy plants and greenhouse specialty crops. I spent the winter working in a vast range of old and older greenhouses in Winchester. There were deep, unheated pit houses, the benches lined with pots of cyclamen or ivy, and low ceiling, hallway sorts of housing filled with vast ancient plants of hoyo or *Stephanotis*, the virginal white flowers harvested weekly for bridal bouquets and buttonholes. There were hot steaming tropical houses, full of lush plants, which Hilliers trucked to Southampton and installed in huge terrariums on Cunard liners, changing them every two months. There were beds, frames, sheds and houses for forcing some plants and holding back others. Alpine houses branched off big cool greenhouses keeping South African plants dry. The tomato house had a stiff breeze at all times, and the air was full of pollen. Every bit of empty greenhouse space on the floor or bench was filled with flats of forced bulbs, constantly on the move, from an outdoor sand bed, into a dark shed, then to the floor of a greenhouse, then up to a bench, then cut for the Hilliers Flower Shop in the Winchester High Street.

If the mayor was giving a speech, Hilliers provided the two palm trees to bracket the podium. It was a full-service nursery. Everything from a perfect "buttonhole" to

*Hilliers Nursery was a full-service nursery. Everything from a perfect "buttonhole" to a new flowering cherry tree for Ringo Starr, or variegated *Cornus florida* for the Queen Mother, or an entire garden, of thousands of plants from large trees to tiny ground-covers, packed into a shipping container and sent to Brazil.*

a new flowering cherry tree for Ringo Starr, or variegated *Cornus florida* for the Queen Mother, or an entire garden, of thousands of plants from large trees to tiny ground-covers, packed into a shipping container and sent to Brazil: Hilliers Nursery could do it!

Hilliers catalog evolved into the useful book *Hilliers Manual of Trees and Shrubs* (6th edition, David & Charles, Devon, England, 1991). The Hillier arboretum is now a public garden and belongs to the Hampshire County Council. Hilliers Nursery prospers, though with a vastly reduced list, offering many hundreds of varieties rather than many thousand. During my year, H.G. Hillier exhibited viburnums at the Great Autumn Show. He was growing 69 different varieties and liked them all, though he realized why some would never be more than oddities.

I was lucky to have been a student during the days of the "old firm," while the nursery still did everything, profitable or not. In its new, streamline form, fan-trained peaches, are bought, not grown. Roses are budded at a rose nursery, not on Hilliers windy hill field. I don't think they force bulbs, grow tomatoes or decorate cruise ships, but they still grow wonderful plants and still pack them with remarkable skill and ship them around the globe. Because I spent most of the year at Jermyns House, Hilliers Nursery in my mind's eye is Hilliers Garden — the arboretum, a wonderful garden where every plant is labeled. It's gardener's heaven.

Customers wrote down the names of plants they saw growing and ordered them at the sales office. Plants were dug and shipped at the right season. Hilliers, like every one else, now offers potted plants year round, as well as field-grown plants in season. The value of a display garden was obvious at Hilliers.

Hershey Nursery

Next on our armchair nursery tour is another family concern of three generations. About 20 years ago the late John

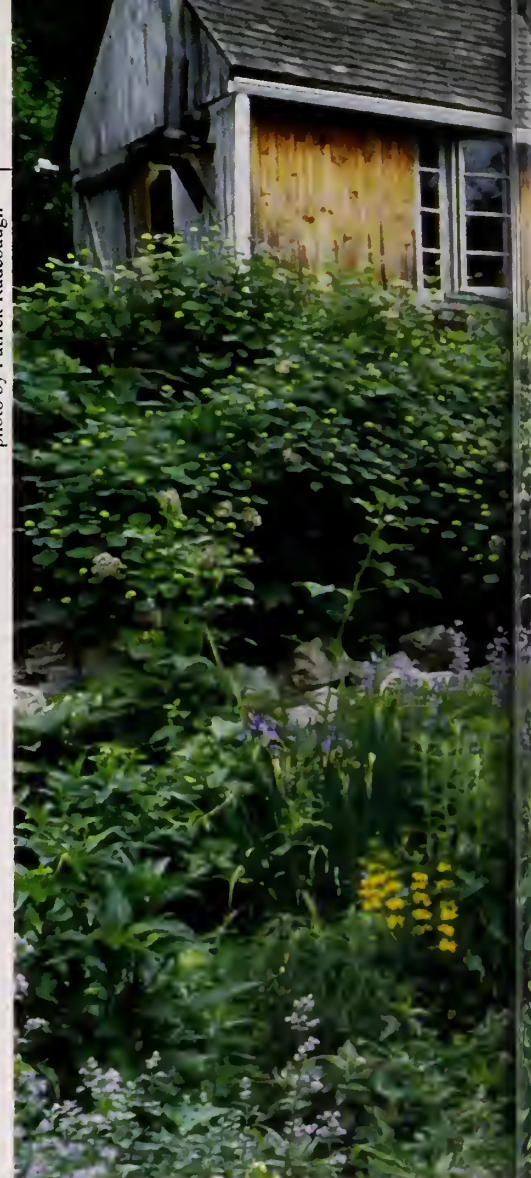


photo by Patrick Radebaugh

Kistler announced at an American Rock Garden Society meeting that Hershey Nursery had nice plants of *Rhododendron* 'Purple Gem.' This plant has little leaves, which are nicely in scale with other tiny rock garden plants. John offered to pick up plants for the group. They were wonderfully cheap, maybe 75 cents each, and I ordered several. I got bushy little plants, well branched, and loaded with flower buds, one of which still lives and grows.

I had never heard of Hershey Nursery, but I imagined it was large, wholesale, and in Hershey, Pa., well out of my usual rounds. Wrong and wrong again. After moving to Berks County, I found it, in Gap, Pa., off Route 30 in Lancaster County. It is small and run by the Hershey family. They specialize in azaleas and rhododendrons. It is a wholesale and retail operation, selling small plants at inexpensive prices. The nursery area is in a grove of tall trees, shading raised beds where tiny rooted cuttings grow into vigorous young plants. In the lath house sales area, three generations of Hersheys were serving customers.

the green scene / january 1996



Lucky students Charlotte Hewer (left) and Jane Reed Lennon (right) were sent in 1969 to Monte Carlo to plant a Hilliers Nursery project there.



The Cherrymont Farm Nursery display gardens show plants in sites where they thrive. They also illustrate just how large a plant is likely to become.

This family recognized the acid, sandy soil and oak groves of their site as an asset and chose the best crop for their location. The beds of little baby plants, growing in fluffy leaf mold under the tall oaks is a vision of “nursery” for me. I am glad they are almost neighbors and visit them in azalea time.

Mr. Thomas's Nursery

I discovered Mr. Thomas's Nursery while helping a friend with a landscape problem. We wanted to plant *Poncirus trifoliata* (hardy orange). The tree had to have a seven-foot trunk, or trunks, before it branched. *Poncirus* is so horribly, dangerously thorny that very few nurseries will bother with it, they don't care to be punctured! Many phone calls yielded “old Mr. Thomas has a row of nice 12-footers.”

With some complex directions, I found Mr. Thomas's Nursery down a dirt road out of sight but within hearing distance of the millions of cars on Route 202 and the Expressway near King of Prussia. Old Mr. Thomas was just that, old, but spry and chatty, standing near a magnificent *Cedrus*

atlantica. The stump branched two feet above the ground then grew as a group of three trees to 70 or 80 feet. When I commented on the tree, Mr. Thomas said that as a boy he had knocked the tip off a rooted cutting and been “clipped round the ears” for ruining the tree. He said it had been ugly for about 40 years, then beautiful, and it just got better. Beyond the *Cedrus* there was plenty of well-grown, large-size, nursery stock, including the promised row of hardy orange trees. I chose the perfect tree for my friend's landscape needs, then spent the remainder of a glorious October afternoon wandering among the beautiful plants Mr. Thomas had grown over a lifetime, in a peaceful island in the midst of millions of rushing cars.

I last visited Mr. Thomas and his nursery many years ago. Now he and his peaceful island are only memories. The *Poncirus* — the hardy orange tree — flourishes in my friend's garden. I like to think of Mr. Thomas's plants growing in local gardens. Will some last for 70 or even 100 years, growing more beautiful yearly? How many

trees will have stories of their own?

From Mr. Thomas's Nursery I learned about buying the plant “in the ground” then paying another person to dig, ball and burlap, and transport the same plant. This was the answer to one big question. If shrubs or trees take 20 years to grow to “landscape size,” how will the now-geriatric nursery person get them out of the ground? I found out about diggers from Mr. Thomas, about patience, and about how long it takes to grow a *Cedrus* to maturity. It takes a lifetime.

Rocknoll Nursery

From large trees and shrubs we switch to herbaceous plants, wild flowers and alpine at our next nursery stop. My friend and gardening mentor, Nonya Wright, gave me a catalog for Rocknoll Nursery in Hillsboro, Ohio. Nonya had found plants listed there that were not otherwise available, and recommended it highly. The Rocknoll list was huge, printed on newsprint and confusing. It was divided into categories — sun, shade, rock garden, wild. But what a list!



Nursery

Many great American plants rarely found in nurseries and unusual varieties of common species were listed. Eight or 10 plants on the entire list were starred with an asterisk (*); a little note said "Eleanor Sauer recommends these plants."

Some of my all-time favorites are "Eleanor Sauer recommends," which I ordered in the early '80s and have grown ever since. Wonderful, hardy *Verbena canadensis*, brilliant pink from May through November, came from Rocknoll; *Iris cristata* of the brightest blue; *Coreopsis ariculata* 'Nana,' the bluegrass daisy; and the hot pink walking phlox, *P. glaberrima*. These are all American natives.

Early in my dealings with Rocknoll, I telephoned Mrs. Sauer about wild flowers for a peculiar site, and we had a nice long chatty conversation, full of good ideas, advice and interesting plants for my project. During the next few to do some business, and I had a number of long horticultural phone calls — Mrs. Sauer would tell me about some new plant form a friend had spotted, or the *Heuchera* her daughter Dorothy Sauer Parker was propagating.

When the Perennial Plant Association formed, I went to an annual meeting in Ohio. During lunch I recognized a voice at an adjacent table, just as the voice recognized mine. The two of us got up and greeted each other. My horticultural friend Eleanor Sauer and I met face to face after being telephone friends for five or six years. It was great fun!

From phone conversations, I knew that Mr. Sauer, Eleanor's husband, and she used to comb the fields, railroad tracks and road banks of Western Pennsylvania, Ohio, Kentucky and West Virginia looking for good forms of native plants: a compact form of *Silene virginica*, a bigger-leaved *Heuchera villosa*, a wild yarrow with real color. Mr. Sauer had died long before I heard of Rocknoll, but the nursery, and especially the plants, were in good hands with Mrs. Sauer.

I never saw Rocknoll Nursery. It has been sold and Eleanor Sauer, in her 80s, lives in a nursing home. Her plants thrive, increase and give pleasure in gardens all over the country. All the Eleanor Sauer Star Plants I ever bought are now on my nursery list. I have no mental image of Rocknoll, a place, but I imagine the Sauers driving along a gravel road, in a Model-T Ford, with picnic basket, shovel, seed envelopes and collecting gear, eyes peeled for a whiter trillium, a tighter phlox.

Old Martin Viette, the founder, father of André and grandfather of Mark, is reported to have said of the move: "We'll take six plants of anything worth growing, I can make a new nursery with that." Maybe that's apocryphal but they sure made a new nursery, in Fishersville, Virginia.

André Viette

The legendary André Viette's is the next nursery. The original Viette's nursery was in Long Island. The family decided to move to rural Virginia 16 years ago. Old Martin Viette, the founder, father of André and grandfather of Mark, is reported to have said of the move: "We'll take six plants of anything worth growing; I can make a new nursery with that." Maybe that's apocryphal but they sure made a new nursery, in Fishersville, Virginia.

Fishersville, near Staunton, Virginia, is more than 200 miles from my house, one way, and André Viette does a lively mail-order business. Their plants often turn up at local garden centers, but I did want to visit the nursery and when my son went to Quaker camp in Virginia I grabbed the opportunity. Once Pierre and his camp gear were deposited, I was a childless woman with an empty car. I headed south through the beautiful Shenandoah Valley, then following easy directions left the interstate and drove through tawny Virginia pasture hills, along a big creek, past cattle, then ponds, and huge blocks of vivid perennials in bloom. Further along, the Viette's house sits on a low hill above the road, surrounded by wonderful gardens. Behind the house a whole range of farm buildings, a sales yard, packing house and potting sheds, are backed by more fields of flower glory! Plants in the display gardens are clearly labeled, and a huge array of marvelous perennials were available in pots. There were helpful salespeople, who encouraged me to buy first, then look at the display gardens; I'd arrived minutes before closing time. I got great plants, then spent the summer twilight looking at the wonderful garden. By the time I'd walked around and looked carefully, I had a whole new list of must-have plants. Viette offers many unusual perennials, the stuff you see in posh books, photographed as an exotic combination but unnamed, or the names you come across in books or articles but never see growing. Viette has them.

My son returned to camp for the next five summers. Each year I dropped him and went south to the nursery. I was never disappointed. The display gardens have matured and been enlarged. I know the local place for the best Virginia ham sandwich and the cheap motel in Staunton, because if you're too late Saturday, Viette's is open Sunday afternoon. I don't make the long round-trip to camp now, but if any friend has a reason to go to Virginia I'll offer to drive them — as long as there is space in the car, and time to visit Viette's.

The display gardens at André Viette's, like the arboretum at Hilliers, are living catalogs for customers, and the repository for the stock plants that provide the cuttings, roots or seeds the nursery grows. Like the Hersheys and the Hilliers, the Viettes have kept their family interested in the business of growing for generations. Mark Viette continues in his father and grandfather's footsteps, breeding and selling great plants.

Why a nursery and why the site

After this armchair tour, the what and whys of a few nurseries, we're back to Christopher Lloyd's questions: why a nursery, why on that land. Lloyd's answers to those questions would be almost the same as mine. He inherited his interest in gardens and plants from his parents and the garden of his childhood. He was born at Great Dixter, his parents' house, where he now lives and gardens. As a young man he must have felt a bit overshadowed by their formidable taste and skill. But his childhood provided the answers to the why and where of his adulthood. Lloyd learned plenty about gardening by osmosis, he absorbed it through his pores. Then he studied gardening and conceived a plan that enabled him to continue to live and garden at his family house.

I inherited my interest in plants and gardens from my mother, Joanna McQuail Reed. I learned plants' names and watched them grow. Longview Farm, my childhood home, developed as the years went by, into a stunning garden. When I decided to study horticulture, after several other career attempts, I realized that I carried a lot of horticultural knowledge without ever thinking about it. I knew that I wanted a nursery. I love the idea that plants grow and increase themselves. I love the tidiness of rows of baby plants, and the potential in a flower pot or lump of roots. With a bit of care and attention, I can cause one nice plant to



A nursery that inspired Lennon: André Viette's piece of the Virginia countryside is brilliant with huge blocks of perennials in bloom. It's a rich reward for the long drive south.

become a whole raft of nice plants. When some family land came up for sale, a place I knew and loved, Patrick and I bought it.

This is a wonderful piece of property. It is large, with varied topography. The soil is rich in minerals, even richer in potato-sized stone. Our whole farm is on the south side of a ridge. Elevation at the road at the top of our land is 980 feet from a United States Geologic Survey marker. At the road at the bottom of the property, along the valley floor, the elevation is 700 feet above sea level. This is the piedmont, 50 miles due west of Philadelphia. High on the ridge are rocky cliffs and very steep, loose rocky slopes, which flatten out into small plateaus, then descend again on a less severe slope to the valley floor.

This ridge, north of the Conestoga Valley, is severely eroded, leaving only the bones of the ridge — huge basalt and granite boulders and the large and small rocks that have broken off. The soils have enriched the fertile Lancaster County valleys below. Our ridge is wooded with oak, hickory and cherry on the highest ground; nyssa, persimmon, walnut and tulip half way down; with maple, beech and yellow birch at the bottom. There are two large clearings, one at our house and farmyard, the other around the ruin of another house and barn, both on the flattish plateaus. The 'Old Farm' (the ruin) has been kept clear with grazing and our farmyard, which was grown over when we arrived in 1981, has been cleared by sheep, goats and our efforts.

Our nursery, which occupies about one acre near our house, and the display gardens occupying another around the house and barn, are the most cared-for areas of the farm and the most heavily used. Tons of organic matter have been added to the soil of these intensely used areas. We have used sawdust from local sawmills, and all the leaves and pine needles we can get. We feed and bed our sheep and goats with mixed grass hay. Both species are picky and probably eat less than 30% of the hay. The rest is mixed with manure and trodden down and broken by the animals. We use enriched rotted hay, in 12- to 20-inch layers, on future planting sites. In a season this huge cushion is reduced to two or three inches of organic matter. Earthworms carry some down into the soil below, and soil organisms and weather break down the rest.

Leaves, garden trash and kitchen waste are processed by our chickens, then added anywhere good soil is needed. This site is very steep. Soil is always escaping down hill. We have made several long low berms, where once every year or so we collect a tractor cartload of fine textured, stoneless soil and carry it back uphill to the garden.

We were persuaded by our soil and our circumstances to choose a herbaceous nursery. The infuriating potato-sized stones, 40% of our soil by volume, make it impossible to dig a balled root. There is no ball, the stones just fall away. Even though we knew about professional diggers, the size and weight of woody plants was a factor against growing them. The production of woodies from cuttings and grafts requires an investment in a propagation setup, which leads to greenhouses and heating systems which lead to serious capital investment and debt. I couldn't see my tiny operation, the one in my imagination, dealing with the debt. I questioned a number of nursery friends about this. To a nursery, each one I spoke with had made some large capital improvements after a public road went through their property. Vick's Wild Gardens got a road through its original site. The Hansen Brothers had roads through several different sites at different times. The Snipes saw Route 1 shift itself across the front of their nursery a number of times in their long nursery history, and when they were paid for lost land they put the money into improvements.

There was another little thing about greenhouses that would turn me against one even if it were free and in my back yard. Next to a dairy cow, nothing ties a



Each Spring about 3,000 4-inch pots of perennials are prepared for sale at Cherrymont Farm Nursery for fund-raising plant sales at local non-profit organizations.

person to a place like a greenhouse used to grow money. A crop can be ruined in hours if the sun comes out, or a branch blows through the roof, or the fan or the furnace stop working. Things don't stop in a greenhouse for Christmas or Sunday. I knew I didn't want a greenhouse.

A nursery with small plants, no greenhouses or other structures, and no debt service, except the actual land: We couldn't wait years and years for saleable plants. We needed a quick crop and a market for it. A south-facing ridge is called the "summer side" of the hill. Our location is protected from wind, and on the middle of the slope, late and early frosts slip by us to lay cold blankets in the valley below.

We bought plants, and begged them and planted them in every scrap of available ground for several years while we carved a nursery site out of brush and jump-up woods. The weak, delicate, or just unsuitable plants quickly died out. The ones that prospered were put on our early plant lists. The list grew and has been refined and reprinted for 10 years now. Cherrymont offers tough interesting plants for all locations and situations. Most of our customers, landscape contractors, and their customers have become more interested and knowledgeable about perennials, which encourages nurseries like mine to find, grow, publicize and sell great garden plants. Eleanor Sauer's plants from Rocknoll are on my list, and some real gems from Viette's. Clif Russell of Russell Gardens, Churchville, Pa., was both a source of plants and inspiration, and Kent Russell, one of Clif's sons, has introduced me to lots of other classy-easy plants. I love old garden varieties, and grow many good but nameless forms of old standards. I sow a great deal of seed in open ground, and depend on self-sown seedlings of some plants. We do root and top cuttings, division and layering outdoors to produce our plants, and buy about 20% of the plants we sell.

Nurseries mentioned in this article

André Viette — Perennials
Rt. 608
Box 6, RD #1
Fishersville, VA 22939
Phone: 703-943-2315

Mail order Catalog: \$3.00
Retail/Wholesale open 9-5
Weekends 1-5

Hershey's Nursery — Azaleas
and Rhododendrons
775 County Line Road
Gap, PA 17527
Phone: 717-442-4080

Retail list: send SASE
Hours: daylight; closed Sunday

Cherrymont Farm — Perennials
387 Shiloh Road
Morgantown, PA 19543
Phone: 610-286-9601

Mail order list: \$1.00
Retail/Wholesale
Hours: Fridays only, April through November

We field-grow most plants, but do more and more in pots to extend our selling season, potting summer flowers in early spring, fresh from the field.

In the 10 years of our nursery's existence our little farm has become annually more beautiful. We have collected great plants and wonderful customer-friends. Nurseries, like plants, seem to spring up, grow, ripen and sometimes mature gracefully. I realize my good fortune to have an interest that has evolved into an income producer, and also into a beautiful landscape outside my window.

More about Why a Herbaceous Nursery

In addition to the appropriateness of the site for an herbaceous nursery, there's another answer to Christopher Lloyd's question: why an herbaceous nursery. Herbaceous plants were, are, the logical choice for us. A short time after I returned from working at Hillers in England, I spent two years making a herbarium of wildflowers of the short grass prairie in Eastern Colorado.

The prairie time, finding and collecting plants in their native habitat, returning later to collect seed, mounting the specimens, key out each plant, and finally having the herbarium sheets verified, was an educational process for me and produced a useful study of herbarium for Wright-Ingraham Institute, owners of the land. There were 280 prairie wildflowers and 70 species of grasses, sedges and reeds. I did not collect woodies or mosses, lichens, ferns or algae. I had help with some difficult identification from the United States International Biological Program Grasslands Biom Study Group. They had electron microscopes! The secret parts of composites and legumes were revealed.

Collecting meant roaming a section of land (640 acres or one square mile) and looking around. Look long enough and hard enough and you become your own microscope. The dry short grass prairie was an active propagating bed: Seeds, encased in animal manure, 'planted' at a distance from the parent plant; grazers, snatching a bite, uproot part of a clump then drop the 'division' nearby; erosion, from the occasional thunderstorm, washes out parts of plants, sweeping them along and depositing them, with dirt, where a bump or stone blocks the way.

It was clear to me that as a group herbaceous plants were the easiest to increase, and the most forgiving.

—Jane Reed Lennon

Jane Reed Lennon, who likes to write almost as much as she likes to garden, wrote *Happier in the Country*, a book published by Prospect Hill, Baltimore, 1987. She is a frequent contributor to *Green Scene* and has written for *Fine Gardening*, *Good Times* and *Rodale Press*.



WINNING THE GOLD

by Darrell Apps

The four 1996 Pennsylvania Horticultural Society's Gold Medal Plant winners, two small trees and two shrubs, join the 42 past winners to make an impressive list of outstanding woody plants.*

When the awards' major benefactor, Dr. J. Franklin Styer, first thought about special recognition for woody plants, he envisioned plants receiving the same kind of notoriety as outstanding professionals often get in the horticultural field. He wanted a program to identify, evaluate and promote outstanding but under-used woody plants. Now after 15 years of Gold Medal Plant Award committee meetings, and some of the most honest and lively, but always enjoyable discussions about the merits of woody plants, "Winning the Gold" seems to have made an impact. The Gold Medal testimonials are everywhere: mail-order catalogs, wholesale catalogs, newspaper print, gardening magazines, garden center promotion, professional groups, garden clubs and best of all discussed over the garden fence. Last year PHS received more than 550 requests about the program. I'm confident this year that the number will be even greater as more gardeners "go for the gold."

Three-flower maple

One of the Gold medals goes to *Acer triflorum*, three-flower maple, a not-so-well-known native of Manchuria and Korea. Richard Lighty, director of the Mt. Cuba Center, first called the committee's attention to this plant. It grows up to 60 feet in its native habitat but usually 30- to 40-feet tall in gardens. Its attributes are bright red fall foliage color and shredding, tan, exfoliating bark.

Gold Medal Committee member Paul Meyer, director of the Morris Arboretum, describes his experience with the tree: "I have observed *Acer triflorum* growing in the wild a number of times in both Korea and in Northeastern China. It typically grows in flood plains along streams, in a habitat similar to its American relative, *Acer negundo*. Unlike *Acer negundo* it's a very refined tree with excellent, bright red fall color and shredding, tan, exfoliating bark. The fall color can vary from one individual tree to the next but many individuals exhibit the brightest orange-red fall color that I have seen in nature. *Acer triflorum* grows rapidly, especially compared to other trifoliate maples. It grows 15 to 18 inches per year and survives in areas where temperatures drop to -35°F."

*See page 13 for information about how to obtain a list of past winners.

Acer triflorum

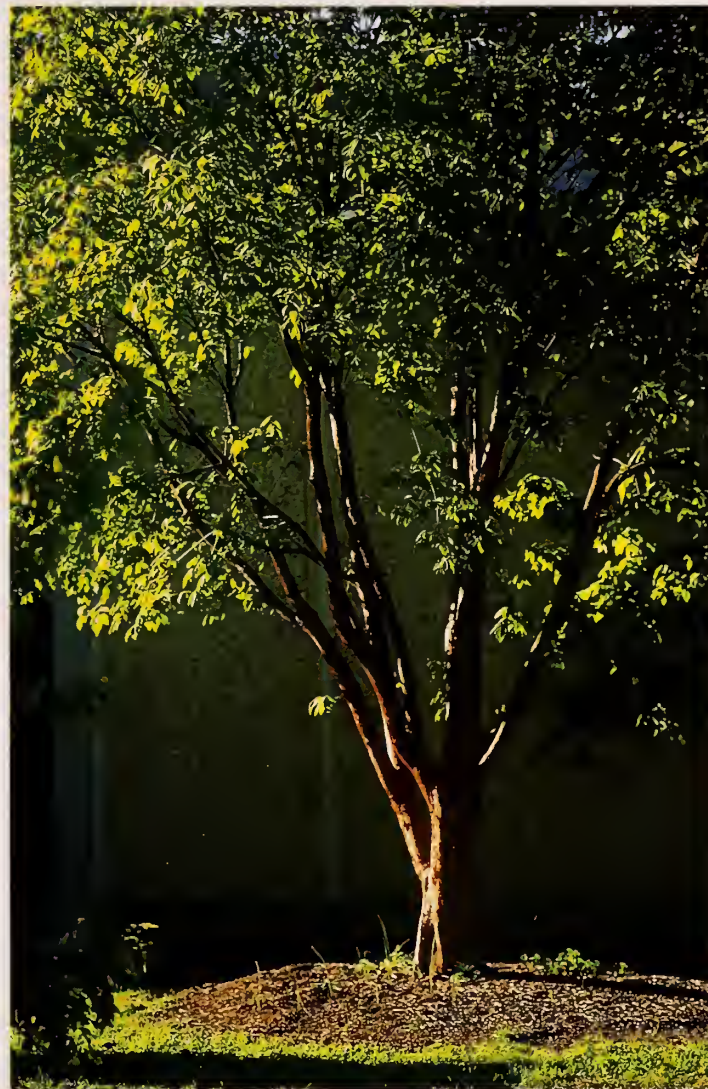


photo by Richard L. Biner

Above: *Acer triflorum* in October at the Scott Arboretum on the Swarthmore College campus. Below: *Acer triflorum* in November. Its beautiful fall color was photographed at Richard and Sally Lighty's garden in Kennett Square, Pa.



photo by Larry Abec

Acer triflorum resembles *Acer griseum* in landscape characteristics but the bark exfoliation is somewhat less and the trifoliate leaves are larger. Committee member Phil

Normandy from Brookside Gardens calls it the "blond version of *Acer griseum*"; its bark is less orange-brown than its close cousin. There are several young trees lo-



Syringa reticulata 'Ivory Silk'

cated in the Greater Philadelphia Region, where it seems to enjoy our summer heat (the tree is reported to grow slowly in the cool summers of Great Britain). One of the easiest trees to check out is the one planted near the Dupont Lecture Hall on Swarthmore College's campus. The campus grows many of the Gold Medal winners, which are a part of the Scott Arboretum. Their director, Claire Sawyer serves on the Gold Medal committee.

Several specialty nurseries are now beginning to offer *Acer triflorum* to their customers. It should be quite successful in most garden soils in full sun or partial shade. Young trees seem to transplant quite well from containers when balled and burlapped.

Ivory silk tree lilac

Our second Gold Medal winner is another small tree, *Syringa reticulata* 'Ivory Silk.' It is called ivory silk tree lilac and has gorgeous creamy white flowers that are borne on trees that reach 20 or more feet in height and 12 feet width in 15 years. Before its introduction by Sheridan Nurseries Limited of Ontario, Canada, most of the tree lilacs were grown from seed and hence are quite variable. It has become the cultivar selection most grown in nurseries today.

Committee member Richard Hesselein describes it as, "A lilac that makes a wonderful single-stem small to medium-sized specimen tree. It has pretty cherry-like bark, beautiful dark green foliage and huge trusses of white flowers in early June."

Committee member William Frederick, Jr., Private Gardens, Inc., cautioned us during our discussions about this plant, saying that it was not fragrant, perhaps even somewhat malodorous to most people. That aside, it is a tough little tree that withstands transplanting (while Judy Zuk was director of the Scott Foundation, she moved the Swarthmore plant three times to avoid construction); it blooms just after the Japanese dogwoods when there is a scarcity of flowering trees.

Tree lilacs grow in full sun to part shade, withstand soils that are somewhat acid to somewhat alkaline. Their roots grow near the surface and may be too competitive for moisture for under-story plants such as azaleas and rhododendrons. Tree lilacs perform well as lawn specimens and are often used as street trees to replace the weak-crooked Bradford pear.



photo by Larry Albee



photo by Larry Albee

Syringa reticulata 'Ivory Silk' photographed in June in Hockessin, Delaware.

Ilex xmeserveae 'Mesid' Blue Maid™

photo by Larry Albee



photo by Larry Albee



Top: A group of Blue Maid™ hollies planted alongside ornamental grasses at William Frederick's Ashland Hollow in Hockessin, Delaware; photographed in August. **Bottom:** Rich Blue Maid™ berries photographed in late September at Frederick's garden.

Blue Maid™ holly

In the Gold Medal shrub category the plant award goes to the broadleaf evergreen *Ilex xmeserveae* 'Mesid' Blue Maid™. This holly was bred by Kathleen Meserve at her home at St. James, Long Island, New York, and derived from crosses involving *Ilex aquifolium* and *Ilex rugosa*. Most gardeners in the Greater Philadelphia Region have tried one or more of the "blue hollies" and discovered their merits. Now after many years of experience it appears as though the workhorse of the group is Blue Maid™. If you're considering a deep green, evergreen hedge or just a good specimen plant, this holly should be on your list.

Steve Hutton of Conard-Pyle Company writes: "The Blue Maid™ holly is, in most respects, the choicest female of the blue holly group. Both foliage and berry size are larger than that of other blues, and the plant is at least a half zone hardier and more vigorous. Additionally, this variety is more tolerant to various stress factors, especially heat."

Blue Maid™ grows 6 feet tall and 8 feet wide in about 10 years. Its fruits are bright red and slightly larger than Blue Princess™, but fewer. It establishes easily either in full sun or part shade. Like most hollies it prefers acid soils. Blue Boy™ holly is one of several male plants that can be used a pollinator.

For those living in colder zones this appears to be the hardiest of the group. Apparently Blue Maid™ owes its existence to its ability to survive winter. During the heyday of blue holly breeding at Conard-Pyle Company a whole house of containers turned brown and died except for one selection, which remained unscathed. The lone survivor received the name Blue Maid™. Please note that this cultivar is both patented and trademarked, which limits propagation only to licensed growers. Like most broadleafed evergreens it is best to plant this from a container or balled and burlapped plant.

continued



Ilex 'Scarlett O'Hara'

'Scarlett O'Hara' winterberry holly

The final Gold Medal for 1996 is awarded to a deciduous holly, aptly named *Ilex* 'Scarlett O'Hara,' although this lady is most at home right here in the Greater Philadelphia Region where we get something more than southern winter. This is not the committee's first deciduous holly selection, and it will probably not be our last. Landscapes need interest during those several months when the leaves have fallen. *Ilex* 'Scarlett O'Hara' fulfills that mission by covering itself with thousands of tiny glossy red fruits that are effective in the landscape from October to January and some years longer.

Committee member William Frederick, Jr., who has several in his garden, describes their merit, "I like this one because it has slightly smaller fruits and therefore more reflective surfaces. It is different from some of the others because the red has more orange and less purple. The plant is also more of a mound shape and not bare at the bottom like several other named varieties. My plants were planted in 1976 and are now about 10 feet tall and 12 feet wide."

Bill Frederick found this plant growing in his Mill Creek nursery (now out of business) many years ago. He suspects he received it with some other stock, but when he queried the suspected source they didn't think it was theirs. Several plantsmen suspect that it is *Ilex serrata* crossed with *Ilex verticillata*, which would explain the smaller fruit. 'Scarlett O'Hara' does need a pollinator that flowers at the exact same time. Not surprisingly, the name 'Rhett Butler' has been given to the male holly that best fits the bill.

Most deciduous hollies like moist acid soils. 'Scarlett O'Hara' has performed well on a clay, fairly dry bank in Bill's garden. Again like the other hollies it is best planted from containers or balled and burlapped. Most of the deciduous hollies are showiest when planted with a dark background. Large-needle evergreens perform that function well.



photo by Larry Albee



photo by Larry Albee

Top: *Ilex* 'Scarlett O'Hara' photographed in September at Ashland Hollow, in Hockessin, Delaware.
Bottom: Photographed in early November.

Gold Medal Plant Award Winners 1991 through 1995

<i>Abies nordmanniana</i>	<i>Crataegus viridis</i> 'Winter King'	<i>Magnolia</i> 'Galaxy'
<i>Acer griseum</i>	<i>Cryptomeria japonica</i> 'Yoshino'	<i>Picea orientalis</i>
<i>Aesculus pavia</i>	<i>Halesia diptera</i> var. <i>magniflora</i>	<i>Prunus</i> 'Hally Jolivet'
<i>Cephalotaxus harringtonia</i> 'Prostrata'	<i>Hamamelis mollis</i> 'Pallida'	<i>Sciadopitys verticillata</i>
<i>Cladrastis kentukea</i>	<i>Hamamelis xintermedia</i> 'Diane'	<i>Viburnum dilatatum</i> 'Erie'
<i>Clematis</i> 'Betty Corning'	<i>Heptacodium miconioides</i>	<i>Viburnum nudum</i> 'Winterthur'
<i>Clethra alnifolia</i> 'Hummingbird'	<i>Hibiscus syriacus</i> 'Diana'	<i>Viburnum plicatum</i> f. <i>tomentosum</i> 'Shasta'
<i>Cornus kousa</i> x <i>C. florida</i> 'Rutban' Aurora™	<i>Ilex verticillata</i> 'Winter Red'	<i>Viburnum xburkwoodii</i> 'Mohawk'
<i>Cornus kousa</i> x <i>C. florida</i> 'Rutlan' Ruth Ellen™	<i>Ilex</i> 'Harvest Red'	<i>Viburnum</i> 'Eskimo'
	<i>Magnolia grandiflora</i> 'Edith Bogue'	

For a complete list of Gold Medal Plant Award winners, send a SASE to: Gold Medal Plant Award, The Pennsylvania Horticultural Society, 325 Walnut Street, Philadelphia, PA 19106.

How to Enter a Woody Plant in the Gold Medal Plant Award Program

It's easy . . . many gardeners have a woody plant that performs well in their gardens. One that looks great, and manages to outwit pests and disease with little care or attention. These are the plants the Gold Medal Plant Award Evaluators want to hear about. To enter a plant for consideration please call (215) 625-8250 or fax us at (215) 625-8288 for an application form.

— **Submission deadline is November 15.**

- Three landscape-sized plants must be accessible to the evaluating committee.
- Plants must be hardy from New York City to Washington, D.C.
- A program of propagation must be underway.

Where to Find Gold Medal Plants

You've got to have *Ilex verticillata* 'Scarlett O'Hara' for your garden, but don't know where to buy it.

Write to PHS for your Gold Medal Plant Award Source List, or pick it up in the PHS library.

Wholesale and retail-mail order sources are listed for 1996 and previous winners! Cultural information and descriptions are included. Send a 52-cent SASE to:

Gold Medal Plant Award
The Pennsylvania Horticultural Society
325 Walnut Street
Philadelphia, PA 19106-2777

EVALUATORS


Richard Hesselein, *Chair*
Darrel Apps
Richard Bitner
Tom Dilatush
William H. Frederick, Jr.
Sheila Gmeiner
William Heyser
Steve Hutton
Richard W. Lighty
Paul Meyer
Philip Normandy
Claire Sawyers
Charles Zafonte
Judith Zuk

Ex officio
Jane Pepper, President,
Pennsylvania Horticultural
Society

Staff Coordinator
Kathleen A. Mills

Darrel Apps is owner of Woodside Nursery, Bridgeton, N.J., where he grows daylilies for connoisseurs. Formerly, he was Department head of Education at Longwood Gardens. Darrel is a frequent contributor to *Horticulture* magazine and has written several books about day-lilies and perennials.

New or Obscure Perennials That Will Deliver on Their Promise

 by Cheryl Lee Monroe



Closeup of *Thalictrum rochebrunianum* photographed at Brooklyn Botanic Garden. For full picture of plant see back cover.

I've napped through many a lecture comprised of long "laundry lists" of plants. Forums are different; they are stuffed with plant lovers. You and the presenters have five minutes give or take, and the diversity of good plants is excellent: those new on the scene or those languishing in obscurity.

A fine list of plants arose again from the Promising Plant Forum at the 12th annual Perennials for the Landscape and Garden Center Industries Symposium held at Swarthmore College. Its notable sponsors gave us another great day: Cooperative Extension, The Pennsylvania State University; The Hardy Plant Society; Longwood Gardens; The Pennsylvania Horticultural Society; Pennsylvania Nurserymen's Association, Chapter E-1; and The Scott Arboretum of Swarthmore College. Listed here are the plums from the six speakers.

photo by Bob Hyland

Kris Benarcik, Education Coordinator, Scott Arboretum at Swarthmore College began with: *Lamium* 'Beedham's White.' A groundcover, this white flowering selection has chartreuse foliage not unlike *Hakonechloa* and, it maintains its colors in winter unlike *Hakonechloa*. Mixed with the burgundy foliage of ajuga or ferns, it's stunning, and also well suited to containers. Moisture and light shade are its first preference.

Crocsmia 'Venus.' The soft orange-yellow color of this selection is an alternative to the strong red/orange of *C.* 'Lucifer.' Its foliage is darker and combined with purple foliages, perhaps *Perilla* or *Cotinus*, you've got a winner. Spider mites do feast on the foliage but *Crocsmia* 'Venus' appears to outgrow them.

Stachys macrantha has deep pink flowers to 18-in. tall and you needn't remove them as with *S. byzantina*. Sold also as *S. grandiflora*, its other asset is rough, green leaves with scalloped edges. If that's not persuasion enough, it shows great tolerance to drought conditions.

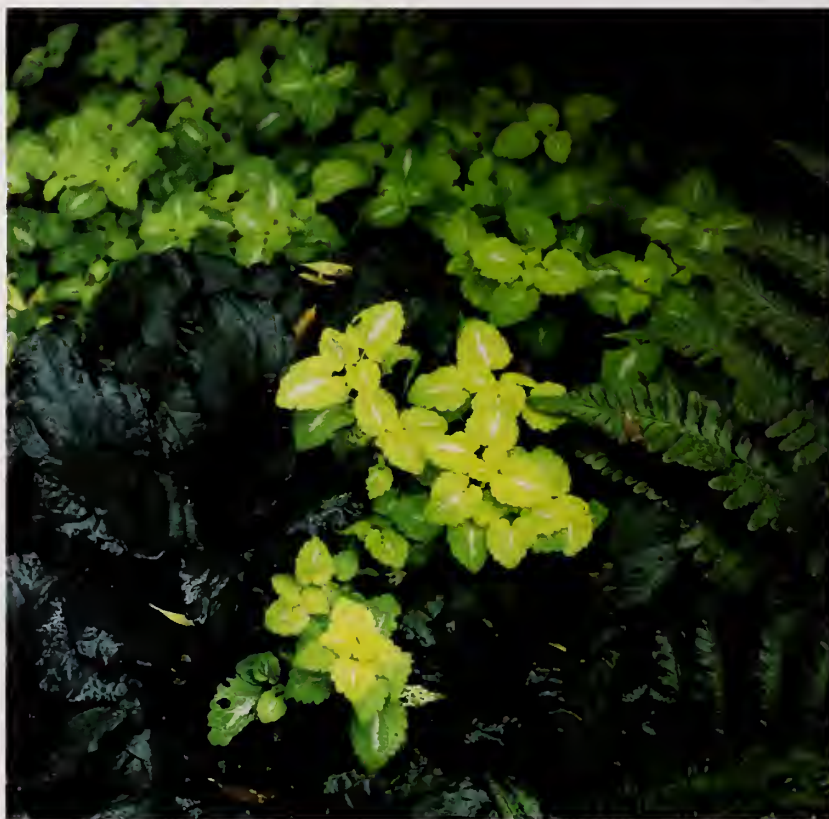


photo by Kris Benarcik

Lamium 'Beedham's White' (center) late September, early October.

Richard Hartlage, superintendent of Horticulture for the Morris County Parks Department in New Jersey brought us:

Phlomis russeliana, a well-known but underused plant, has yellow flowers borne in June and in whorls on spikes reaching two feet. Rough large leaves hover close to the ground providing a good groundcover.

Tetrapanax papyriferus. Stretching the limits of hardiness (we can never resist) is a subtropical tree (Zone 7) with great oversized leaves 10 to 15 in. across. Treated like a hardy perennial and planted deep, its survival chances will be best (placing the crown at 12 in. would be good).

Eryngium umbellifera is grown for its texture; its leaves finely cut, and very stiff, not unlike cardboard. Its incidental flowers are borne on spikes, and it prefers part shade.



photo by Carl Schoenfeld

Eryngium umbellifera, late September, early October.

Bob Hyland, Vice President, Horticulture & Operations, Brooklyn Botanic Garden offered:

Thalictrum rochebrunianum 'Lavender Mist' has great height, has vertical drama, and its value is further enhanced by its haze of lavender flowers. Four to six ft. heights are supposedly the norm, but it will soar to eight ft. Colored sepals account for the lavender haze; its stamens are a sulfur yellow in contrast. Autumn light will enhance it not unlike ornamental grasses and the tall stems can be left for winter. It does require staking. (See p. 14.)

Gaura lindheimeri 'Whirling Butterflies' has four-petaled white flowers that seem to dance in the garden; borne all along greyish-green stems its foliage is basal and not at all interfering. Water droplets will cling to the stems as a bonus, and in fall the stems are brown and remain standing.

Knautia macedonica is a good plant for edging in the foreground: its scabiosa-like flowers are pure crimson. Flowers stand at 18 to 24 ft. above grayish-green basal foliage, excellent contrasting with *Itea* sp. or *Chrysanthemum* 'Mei-kyo' in fall.



photo by Bob Hyland

Gaura lindheimeri 'Whirling Butterflies,' photographed in July at Brooklyn Botanic Garden.

New or Obscure Perennials

Nancy Ondra, Proprietor of Pendragon Perennials in Emmaus, Pa., is a proponent of:

Scabiosa ochroleuca is related to *S.* 'Butterfly Blue' and *S.* 'Pink Mist,' two current hot items. Pale yellow flowers bordering on the greenish side are around from May to October. Its seed pods are equally as handsome but best removed to enhance further flowering. Full sun.

Anthriscus sylvestris 'Ravenswing' is a relative of chervil and sports dark blackish-brown foliage to three feet. It prefers cool weather, blooms (white umbels) in late spring and naps for the summer. Cut it back and plant with perennials with abundant summer growth, gold or chartreuse foliage would be the most smashing, and it will resurrect itself as temperatures cool.

Lamium album 'Pale Peril' has new gold foliage with white frosting on the edges and flowers in June. Tucked in dry shade its color will be grand, it will form a good mat, and its tough conditions will slow it down (maybe); it's aggressive.



photo by Nancy Ondra

Scabiosa ochroleuca (the pale yellow flowers), photographed in late September, early October.

Ellen Talmage, a Director for the Perennial Plant Association and of H.R. Talmage in Riverhead, N.Y., brought us three selections from The Perennial Plant Association's August 1995 conference:

Aquilegia viridiflora 'Chocolate Soldier' is a 12-in. columbine with chocolate flowers; yes, they are brown. If you don't try it for its offbeat color, try it because it's fragrant.

Lobelia speciosa Fan. The first series of hybrids on the market were the Compliment Mix, great for containers, in the garden and good cut flowers. A new series Fan and four new selections, Fan Scarlet with bronze foliage, Fan Orchid Rose, Fan Deep Red and Fan Cinnabar Rose (a rose-pink with a touch of red in the center) are here. Shorter, they are well suited for containers or the garden, and flower on 24-in. sturdy stems from June to September.

Veronica longifolia 'Noah Williams' is a sport of *V.* 'Icicle'; its foliage is variegated, its flowers white. A perennial with good variegated foliage and white flowers is a must. The down side is, you'll have to wait until 1997 to find it available.



photo supplied by Germania Seed Co.

Aquilegia viridiflora 'Chocolate Soldier.'

Richard Weaver, Proprietor, WE-DU Nursery in Marion, N.C., shared some of his loves:

Scutellaria serrata (syn: *Incana*) a native wildflower, it fills the void before the parade of astilbes begins. An attractive bushy shade lover, it propagates easily and is easy to grow. *S. serrata* 'Blue Bird' is a sky-blue selection and more color forms are on the horizon.

Uvularia 'Sunbonnet' is a graceful woodlander like *U. grandiflora* but its flowers are paler yellow and bell-shaped. Blooming early, the end of April in the Delaware Valley, it grows easily in high shade.

Bletilla ochracea arrived from China some 15 years ago but you'll not find it until 1997. More slender than *B. striata* it blooms in June. It thrives in cool, high shade where the soil is moist but not wet. Gardeners are patient, we'll wait.



photo by Richard Weaver

Uvularia 'Sunbonnet' photographed in April.

Sources

Several of the plants noted in this article can be found in your local retail garden center, the rest through mail order at the nurseries listed below.

Carroll Gardens
444 E. Main Street
P.O. Box 310
Westminister, MD 21158
(410) 848-5422

England's Herb Farm
RD 1, Box 706
Honey Brook, PA 19344
(610) 273-2863

Forestfarm
990 Tetherow Rd.
Williams, OR 97544
(503) 846-7269

Heronwood Nursery
7530 288th N.E.
Kingston, WA 98346
(860) 297-4172

Niche Gardens
1111 Dawson Road
Chapel Hill, NC 27516
(919) 967-0078

Plant Delights Nursery
9241 Sauls Road
Raleigh, NC 27603
(919) 772-4794

Wayside Gardens
Hodges, SC 29695
1-800-845-1124

WE-DU Nursery
Route 5, Box 724
Marion, NC 28752
(704) 738-8300

White Flower Farm
Litchfield, CT 06759
(203) 496-9600

Yucca Do Nursery
P.O. Box 655
Waller, TX 77484
(409) 826-6363

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I certify that the statements made by me above are correct and complete.

Jean Byrne, Editor

PUSHING THE LIMITS

by Fran Sorin Jungreis

An inexperienced gardener confronts a steep slope and unlandscaped terrain at a new home. After several years of experimentation, help from mentors, taking courses, reading and traveling, the author emerges as a confident gardener ready to encourage others to push the limits.

Fifteen years ago I moved to a newly built home in Bryn Mawr. As a young mother of an infant child, moving into a new home in a neighborhood filled with children seemed to make sense. When we bought the lot, the builder assured us that it was a beautiful, gently sloping piece of property that just needed to be graded properly. By the time we were ready to make settlement, it was painfully obvious that we were about to buy a property situated on less than 1/2 acre on a steeply sloping, irregularly diamond-shaped lot in a soon-to-be aesthetically challenged neighborhood. Even for one who knew nothing about gardening, this was not shaping up to be a pretty picture.

By early spring it was imperative that we construct some significant retaining walls in the back yard, if we didn't want a mudslide seeping through our back doors and windows. Once the railroad tie construction was completed and the typical evergreen/shrubbery landscaping positioned tightly up against the front of the house, I was horrified. My home looked so cold and empty, not at all like what I had envisioned in my dreams. I didn't know what to do.

A friend of mine clearly saw that I was in need of basic horticultural help. One day he drove up with a wonderful conifer and some daylilies perched on the back seat of his convertible. He explained to me that if I continued to plant trees and flowers on a

regular basis, that in no time at all I would have a legitimate garden. That spring I began to buy annuals and perennials for the backyard. A few roses and daylilies were scattered about so that I could see them from the back of the house while playing with a young infant and toddler. Whenever possible I would purchase a conifer at a local garden center to begin to delineate the borders of our property.

A meadow garden inspires

I found gardening on a steep hill to be awkward and physically punishing. Although I was beginning to gain a bit of knowledge about perennials, very little of what I planted actually translated into a picture that was in any way pleasing to my eye. I knew that somehow I had to discover the key to creating my own 'secret' garden.

One day while driving down a back road in my township, I passed a wildflower meadow that caused me to jerk my car to a dead stop. Never had I seen such a profusion of color in that kind of a naturalized state. A gardening friend told me that I had stumbled upon Chanticleer, then a private estate* in the neighborhood, managed by a fine, young English horticulturist.

I immediately rang up Chanticleer and set up a meeting with Chris Woods, then the head gardener [now director]. Our initial discussion was about how to estab-

*Chanticleer in Wayne, Pa., is now open to the public.

lish a wildflower meadow and native naturalized gardening. Within a season, due to Chris's exuberant nature and expertise, my side yard had been transformed into an early spring blanket of daffodils and a late spring sweep of wildflowers. I hired contractors to pull out all of the conifers and deciduous shrubs in the front and to deepen the shape of the front beds. Chris proceeded to plant only deciduous shrubs, grasses and a limited variety of perennials.

After the front had been planted up, I was shocked at how barren it looked. When I expressed my concern to Chris, he replied "Trust me. Be patient. You'll see in a few years. It will be beautiful." How right he was. Although I have added and deleted certain specimens each season, the foundation of Chris's design has remained intact.

I made my first trip to England specifically to visit gardens. I was struck by the English use of color and the abundance of their specimens. What most impressed me, though, was the simple yet strong sense of the 'bones of the English gardens.' In particular, I was swept away by the dry stone retaining walls. All throughout the countryside, whether at a National Trust property or on a secondary back road, the centuries' old walls grabbed my eye and reached to archaic feelings deep within.

Initially, after my first trip to England, I was inspired to use the lists of all the wonderful specimens I had discovered in

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Front of the author's house with new plantings 13 years ago. Hard to believe that a home could look so barren and uninhabited.



What a difference 13 years has made. Here's the same house with extended beds and a multitude of perennials in late spring.



Top left: Overview of backyard before construction. The swing set in the background, the steep incline and the railroad tie construction limited the type of paradise envisioned for this backyard. This hill was later dug out in September, 1992. **Top right:** Finally, construction has begun. Watching the tons of dirt being dug out proved to be an exhilarating experience. It represented a chance at finally creating the author's dream garden. **Bottom:** In early spring, a gardening friend, Dave Wilder, built wooden tripods to add a strong vertical element to the tropical garden on the second level. The author so loved his work that she asked that he continue to build more elements into the garden. The fence surrounding the vegetable/herb garden is another example of Dave's rustic wooden structures.



that horticultural wonderland. Temporarily, the novelty of experimenting with these new plants appeased me. During this time I had also begun apprenticing with Jock Christie, the head gardener at Sir John Thouron's garden in Unionville, Pa. Being exposed to a horticultural environment like Doe Run, where the sole priority is to create beauty, jarred my own sense of aesthetics. Each time I returned to my garden, I knew that something was going to have to change radically.

During the winter months, I would look out my windows and ponder my harsh landscape. I interviewed several landscape architects. I even had a few do some drawings. Each time I began to think I was going to work with one on a long-term basis, I knew in my heart that no one was close to translating my vision. Finally, I realized that I'd have to do it on my own.

Although I didn't know the first thing about how to draw to scale, I began to draw. I read everything I could about stone retaining walls. I started to keep files of pictures from gardens I loved. As it turned out, several of them were Mediterranean inspired. I continually met with engineers, township officials, contractors and other gardeners who had built stone walls. Because I was renovating much of my home during this period, my architect agreed to translate my garden designs into architectural drawings. I persisted until I got what I wanted.

In spring of '92 we took down the huge maple tree on the big hill and excavated several tons of earth. I spent a great deal of time at the quarry selecting the exact mix of the stone I wanted. The stone mason, Felice di Felice, and his workmen did a first-rate job. The rhythm of their tools at work and the background sound of their voices conversing in Italian gave me a sublime pleasure. By the time they departed that fall, I knew that I would miss their presence each time I walked into my yard early in the morning. But as the vibrant colors of fall invaded the landscape, I would stare at my magnificent stone walls and think: Finally, I can begin to create the garden that I have been dreaming about all of these years.

By early summer, the profusion of the tropical/red garden on the second level is apparent. Specimens are overflowing, intertwining and exploding. The use of red as the backbone color of this garden suggests a sense of excitement but also evokes a feeling of nostalgia, as if looking at an old colored print.

Three levels

It has been close to three years since those stone walls have been laid down. The basic bones of the garden have finally taken shape. This diminutive, aberrant piece of land has been landscaped into three levels. The top level of the garden, which abuts neighboring properties, contains two enormous island beds. One of the borders extends the entire length of the property and encompasses a shaded area where one can view the island beds from a distance. The plantings on this level are designed to be sumptuous and overflowing. Over the years, the beds have been enlarged as the landscape has evolved. Nine *Robinia pseudoacacia* 'Frisia,' positioned at the top of the stairs and beyond in the back beds, create a luxurious focal point. To my eye, these island beds have the feel of the English countryside.

When developing the second level, the structure of the tall (7 to 9 feet) retaining walls and the narrowness of this strip of land suggested a more geometric, 'Italian' composition. A fountain, several large potted plants filled with tropical plantings and rows of *Tilia cordata* (small-leaved lindens), assist in promoting a Mediterranean theme. Over the past few years, I have become fascinated by semi-tropical and tropical plantings. In the midst of our very dry and humid Pennsylvania summers, this is the one garden area that continually looks lush, green and inviting. Banana plants, passifloras, canna lilies, certain salvias, verbenas and dahlias all flourish in this type of climate.

The bottom level, a huge flagstone terrace the width of the house, functions as an outdoor living space. A 40-ft. expanse of

french doors connects the kitchen area to this lower level. I am constantly experimenting with wall climbers and different plantings in pots to create a rich, aromatic environment. This year, I added a small fenced-in vegetable garden with a wild-flower meadow beyond.

Lessons to be Learned

Here are some lessons that I've learned over the years that might prove helpful to others establishing gardens at a difficult and new site.

- *Trust your instincts.* If you know that a certain design, color combination or planting doesn't feel right to you, then don't do it, even if experts tell you that 'this is the way to go.' This is your garden. You are the one who has to live with it.
- *Use mistakes as learning tools.* The best way to learn is to make mistakes. If you're an artist and your palette is your garden, sometimes you have to live with your mistakes for at least one season. Don't be hard on yourself. Gardeners constantly change, amend, delete. Most times I know that there's a better way to solve the problem with which I am grappling. It may take years before you develop a design with which you can ultimately be content.
- *Find yourself some good teachers.* They are invaluable in helping you to train your eye and to spur you on to new ideas and concepts. Don't be afraid to ask for help or to let people know the limits of your knowledge. Gardening is a lifelong pursuit.
- *Take risks.* After you've developed a foundation in the basics of gardening, the only way to create your own personal vision is by taking risks. Not feeling constrained by rules and regulations will free up your creative process. You'll be surprised what ideas you are capable of generating by letting any and all ideas permeate your brain. Push your limits! Invariably, the results will be worth it.

Fran Sorin Jungreis has lived and gardened on a challenging piece of property in Bryn Mawr, Pa., for the past 15 years. She is in the midst of constructing more retaining walls, adding a potager/cutting garden and contemplating a water garden.

Charmers, Thugs, and Superheros:

Roses with Long Canes Provide Vertical Accents in the Garden



by Judith C. McKeon



Train them on pillars, trellises, arches, over arbors, garden structures, walls, and into trees. Roses with long canes — climbers, ramblers, and lax shrubs — confer height, soften hard architectural lines, conceal or camouflage unsightly buildings, and bestow a touch of elegance. Use their long canes to wrap free-standing posts, towers, and obelisks to create charming vertical accents in mixed borders and conserve space in small gardens. Both repeat and once-blooming types share their support amenably with a clematis or honeysuckle vine to enhance and extend bloom season. Where vertical space permits, these roses are shown to advantage trained as wall shrubs, espaliers, and fence-huggers. The rampant ramblers and large-flowered climbers are typically reserved to fill large spaces or cover any ugliness in the garden including sheds, garages, and dead trees.


Both esteemed and awed as the thugs of the rose world, roses with long canes live up to their reputation as tough, trouble-free plants. Certainly they prove to be the easiest and most satisfying roses to grow. With sturdy support and a little training, climbers make beautiful, romantic garden pictures unique to this group of ornamental plants. Roses trained as climbers are a must for the uninitiated or any gardener looking for an obvious success, because most varieties are simply indestructible. Rambler 'Dorothy Perkins,' for example, widely

Roses trained as climbers are a must for the uninitiated or any gardener looking for an obvious success, because most varieties are simply indestructible.

planted at the turn of the century, is commonly found suckering along roadsides long after the homestead and its inhabitants have vanished. From short climbers to massive scramblers, many superior landscape plants are found among this class of roses.

Selection and landscape use

An easy way to get started is to incorporate a climber or lax shrub rose into an existing sunny perennial bed or mixed border. There are many ornamental garden structures available to use as support for



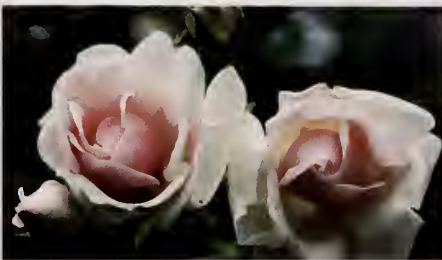
The best known of the fragrant Bourbons, *Rosa* 'Zephirine Drouhin' makes an excellent short climber. Training this rose is painless because it has no thorns.

Charmers, Thugs, and Superheros:



roses with long canes. An inexpensive method is simply to sink a 10- or 12-ft. rot-resistant post 2 to 3 feet in the ground. Then choose a short climber or lax shrub rose with a height of 8 to 10 feet to wrap the pillar. Many repeat-blooming modern climbers such as 'America,' 'Dortmund,' 'Westerland' and 'White Cockade' make excellent pillar roses. Fragrant antique roses including 'Honorine de Brabant,' 'Zephirine Drouhin,' and 'Reine Des Violettes' are lax shrubs that are beautifully displayed wrapped on a pillar with clematis or honeysuckle woven through the rose to pick up the bloom and hide bare canes later in the season. It's a joy to train both 'Zephirine Drouhin' and 'Reine Des Violettes' because they are thornless.

photos by Judith C. McKeon



Rosa 'New Dawn' has inherited the scent and beautiful hybrid tea-type flowers of its famed parent, climber *Rosa* 'Dr. W. van Fleet.' 'New Dawn' in turn is parent to a host of repeat-blooming modern climbers and remains one of the best of them.

rose about 3 ft. from the trunk and guide the canes along a bamboo stake until they reach the first crotch, then the rose will pull itself up by its prickles and grow to the light. For young trees, use antique 'Madame Plantier,' a lax alba rose that stretches about 6 to 7 ft. and provides a profusion of fragrant blooms in June. A similar pure white rose 'Madame Legras St. Germain' also makes an excellent subject for growing into a small tree.

For larger trees, ramblers such as 'Seagull,' 'Chevy Chase,' 'Kew Rambler,' and 'Rose Marie Viaud' are excellent, disease-free selections. Each scrambles about 15 ft. with facility and then throws its huge clusters of June blooms over the limbs of the tree. Ramblers attract attention when their lovely flowers cascade from tree limbs, then fade from view when not in bloom. The fragrant, pure white flowers, and red hips produced by 'Seagull' contrast very nicely with purple plum foliage. Rampant climber 'American Pillar' can

also be given support in a large tree, which it will scale effortlessly ultimately stretching about 20 ft. This rose is susceptible to mildew after its bloom, although it is resistant to blackspot. It is worth growing for its massive bloom. Trained into a tree, its host helps to camouflage the marred foliage.

The superheros

Large-flowered climbers 'Alberic Barbier,' 'Albertine,' 'City of York,' 'Dr. W. van Fleet,' and 'Silver Moon' reach the second story of a building when trained up. These beautiful and fragrant early 20th Century *Rosa wichuraiana* climbers easily stretch 15 to 20 ft. and provide impressive flower displays for several weeks in June. Their parent, commonly known as memorial rose, is a prostrate Asian species noted for its garlands of flowers freely given over a long season and its shiny, healthy foliage. Its disease resistance is passed on to its offspring.

Rosa wichuraiana climbers are among the most interesting and versatile roses. With training, these superheros seem to leap tall buildings with a single bound, easily scale large trees, effortlessly make their way up over a roof, and plunge recklessly down inhospitable slopes smothering weeds in their wake. They serve a multiplicity of uses in gardens and although they are typically used as climbers, they make excellent groundcovers and impenetrable shrub masses.

Recommended roses with long canes (Zones 5-9 except where noted)

'Alberic Barbier' produces clusters of yellow buds that open to fragrant large, pure white, scented flowers massively and effectively displayed for several weeks in June. Canes stretch 15-ft. tall and wide depending on training clothed in clean, glossy foliage that is disease resistant. This is a great, but under-used rose.

'Albertine' is a glorious sight in full bloom; its soft pastel flower color is appreciated in gardens around the world. Apricot-copper buds open to light salmon-pink fragrant flowers that cover the plant for several weeks in June. Canes reach 15 to 18 ft. clothed in clean foliage.

'Alchymist' is celebrated for its old-fashioned apricot blooms, well scented and produced in abundance for several weeks in early June. The upright, vigorous canes

Rosa 'American Pillar' is one of the most popular climbers of all time. It produces huge clusters of carmine-pink single blooms for several weeks in June.

Climbers as wall shrubs

Roses are easily supported on a wall by attaching wires or a lattice onto which the canes are tied. Fan out the canes or bend them nearly horizontally for maximum bloom. Some of the larger repeat-blooming climbers such as 'New Dawn,' 'Eden,' and 'Parade' will quickly cover a wall with seasonal floral displays. These superior varieties effortlessly stretch 10- to 12-ft. high and wide depending on training. Plant these climbers about 8 ft. apart and fan out the canes to fill the space. They are magnificent grown in combination for their contrasting shades of pink, from a blush to a deep pink, blend beautifully. Each produces masses of old-fashioned double blooms that are scented and repeat bloom is respectable. 'Parade' is the most reliable producer of all season flowers and is rarely out of bloom.

Some of the most fragrant and beautiful roses give their all for several weeks in June and overwhelm with their beauty, then quietly become part of the green background. The fragrant varieties 'Alchymist,' 'Goldbusch,' and 'Maigold' bear huge, old-fashioned flowers in shades of apricot or yellow for several weeks in June. Trained as wall shrubs, each covers a space about 8- to 10-ft. high and less wide depending on training. Do not shy away from these exquisite beauties. One season of bloom is no shortcoming. Simply grow clematis or honeysuckle over these elegant wall shrubs to extend and enhance color in the garden.

Training roses to grow into trees

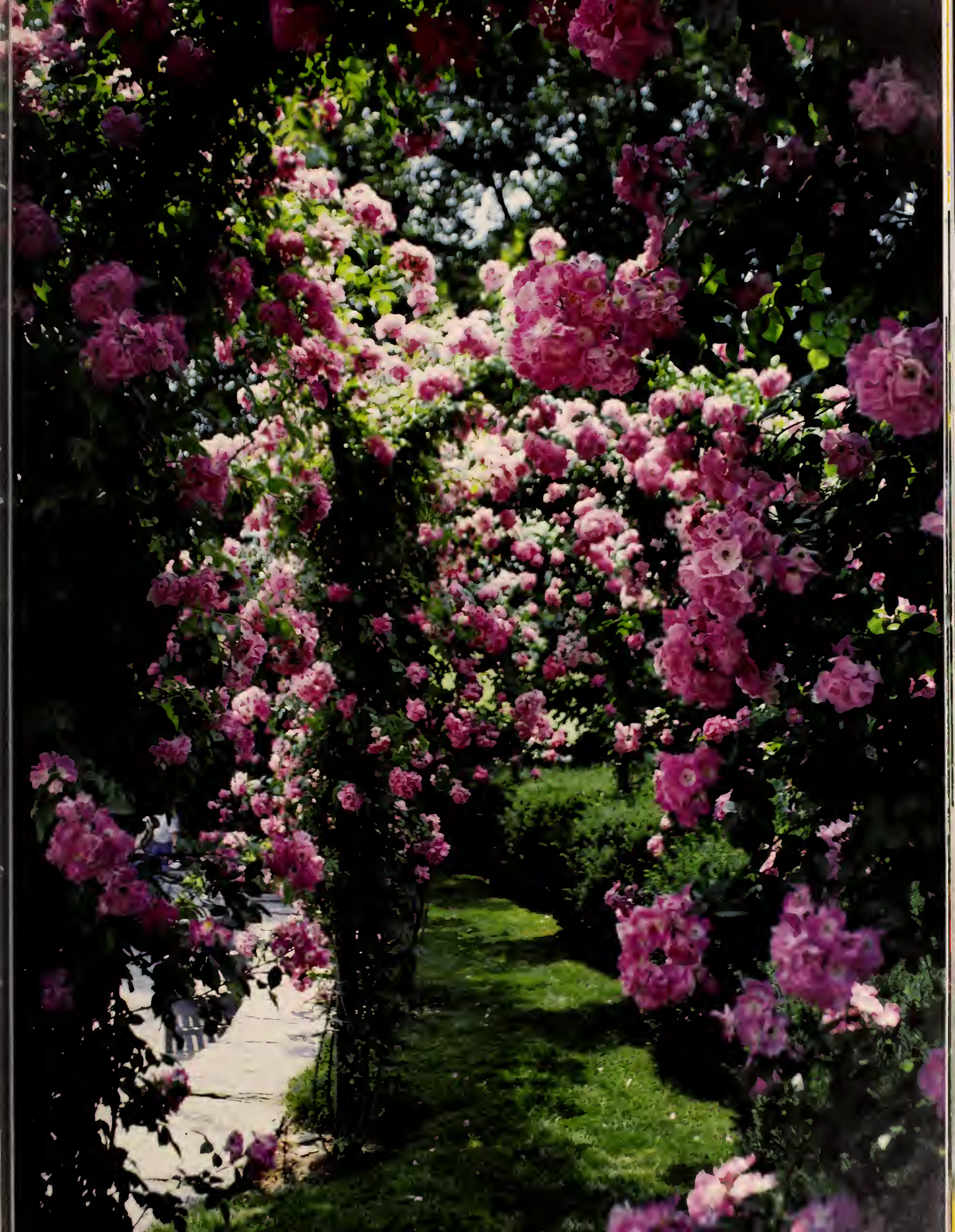
If you have a medium-sized tree with small leaves such as crabapple, cherry, purple plum, or dogwood it is a simple task to train a carefree climber, rambler, or loose shrub to scurry into the tree. Plant the

Blackspot

Most of the roses discussed here are resistant to blackspot and no treatment is required. For susceptible varieties such as 'Zephirine Drouhin,' grow a vine over the rose to hide its naked canes or protect foliage in spring with a spray of fungicidal soap or wettable sulfur and repeat as needed.

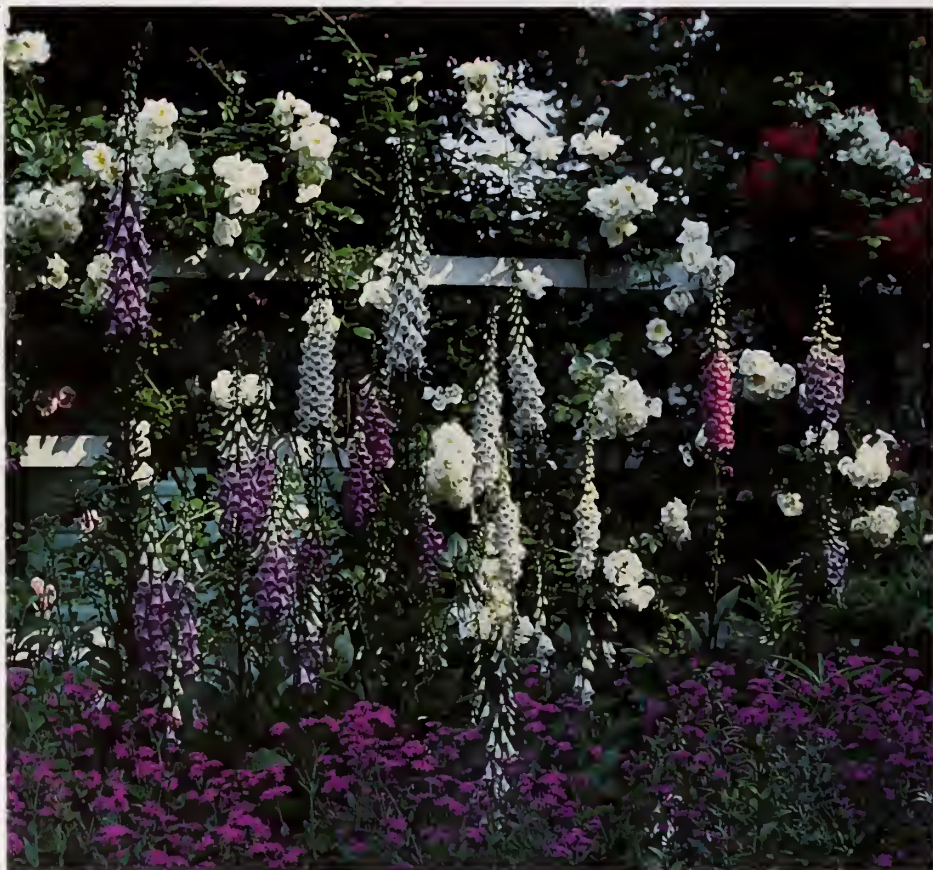
Mildew

Most of the roses discussed are not bothered by mildew. Susceptible climbers such as 'American Pillar' can be treated effectively with a spray of horticultural oil or cover unsightly foliage with a vine such as clematis.



Charmers, Thugs, and Superheros:

photos by Judith C. McKeon



Top left: Few flowers can compare with *Rosa* 'Alchymist.' The wall shrub or climber produces a profusion of old-fashioned fragrant blooms for several weeks in June. Each is a treasure. **Top right:** *Rosa* 'Dortmund' is simply a knockout. The large, distinctive scarlet blooms always attract attention in the rose garden at the Morris Arboretum of the University of Pennsylvania. **Below:** Large-flowered climbers *Rosa* 'Mary Wallace,' *Rosa* 'Silver Moon' and *Rosa* 'Paul's Scarlet Climber' make a lovely garden display in June with perennial companions *Digitalis purpurea* and *Silene maritima*.

stretch 6- to 8-ft. tall and wide. Train a clematis or honeysuckle over the rose canes to extend bloom season and hide any defoliation from blackspot, to which it is somewhat susceptible.

'America' is rarely out of bloom. Its salmon hybrid tea-type flowers are scented and produced nearly continuously. Canes stretch 8 to 10 ft. and are easily trained on a pillar. Grow a violet clematis over it for a stunning color contrast. It exhibits good disease resistance.

'American Pillar' bears huge clusters of carmine-pink single flowers on canes stretching 15 to 20 ft. It is one of the most popular climbers of all time. It is resistant to blackspot but does get mildew after the bloom. It is still worth growing, especially into a large tree, which will camouflage its marred foliage.

'Chevy Chase' is a great red rambler that is vigorous and disease-free. Large clusters of small crimson flowers attract attention. This is a versatile rose that reaches 12 to 15 ft. trained on arches, fences and into trees. 'Kew Rambler' is a similar variety with trusses of small, single, light pink flowers like apple blossoms. Both are disease free.

'City of York' is one of the best white climbers. The scented semi-double flowers are pure white and produced in huge clusters. Canes clothed in clean foliage reach 10- to 12-ft. tall with a similar spread depending on training. If it is deadheaded



after the June bloom, it will give a few late-summer flowers.

'Dortmund' features huge clusters of large five-petaled red flowers branded with a white eye. Trained as a climber expect it to stretch 8 to 10 ft.; foliage is glossy and typically clean. This rose is a knockout in full bloom and will repeat reliably if religiously deadheaded.

'Eden' (also called 'Eden Climber') belongs in every garden where pastel flowers are appreciated. Fat creamy buds open to scented double blooms of soft pink swirled with creamy yellow. Deadhead to encourage repeat bloom and grow a clematis over to give seasonal interest. Heavy canes well foliated with disease-resistant foliage easily scale a 10-ft. trellis.

'Honorine de Brabant' is a Bourbon rose worth growing for its striped, well-scented flowers and repeat bloom. Flowers are pale lilac-striped violet. Wrapped on a pillar it grows to about 6 ft.; train a clematis over it for extended bloom. Disease-resistance is good.

'Madame Plantier' is a great rose for the novice. A hardy, disease-free alba rose with a lax habit it will accept some light shade. Buds are tinged crimson, opening to pure white flowers quartered with a button center and fragrant. Trained as a climber, it stretches about 6 ft. It looks charming scrambling into a small tree or wrapped on a pillar with a clematis to pick up the bloom after June (Zones 4 to 8).

'New Dawn' is the repeat-blooming sport of large-flowered climber 'Dr. W. van Fleet' and bears identical flowers. They are shell-pink, scented, high-centered in shapely hybrid tea form. Vigorous canes easily reach 12 ft. or more with a similar spread clothed in glossy, disease-resistant foliage. 'New Dawn' is parent to a host of repeat-blooming modern climbers and remains one of the best of them. No garden should be without it.

'Parade' is a 'New Dawn' offspring and simply the best climber in its color range. Its deep pink old-fashioned flowers are scented and produced in profusion in June with excellent repeat. It is rarely out of bloom. Disease-resistance is also excellent. Expect it to stretch 10 ft. with a similar spread.

'Seagull,' an awe-inspiring sight in full bloom, produces huge clusters of small, single, pure white blooms with a sweet scent. Flowers are effective for several weeks in June. The disease-free rambler easily stretches 15 ft. or more and makes an excellent subject for training into a large crabapple tree.

With all garden plants, but especially roses, the gardener must take charge. Roses are vigorous shrubs and are kept in bounds and good health with annual pruning.

'Westerland' blooms from Memorial Day to the 4th of July and then produces scattered bloom through summer and autumn. The large tangerine-orange flowers exude a fruity fragrance. Canes stretch about 8-ft. tall and wide depending on training; foliage is disease resistant. This rose looks amazing with the annual sweet potato vine 'Blackie' grown over it and its flowers also contrast beautifully with a red clematis.

'White Cockade' inherited the noble genes of 'New Dawn.' Rarely out of bloom, its canes are clothed in clean, glossy foliage. Its pure white flowers with hybrid tea-type form have a light scent. It makes a short climber or pillar about 8-ft. tall and looks wonderful sharing its support with lavender-blue *Clematis* 'Mrs. Cholmondeley' woven through it for interesting color contrast.

'Zephirine Drouhin' is the most popular of the fragrant Bourbon roses. Its floppy habit and thornless canes make it easy to train as a climber stretching about 8 to 10 ft. Flowers are deep pink, semi-double and exquisitely perfumed. The main show is in June, but it typically produces a few autumn blooms. It's susceptible to black spot and typically loses its bottom leaves. Train a clematis over it to extend the bloom season and hide its bare canes later in the season (Zone 6 to 9).

Care and maintenance

The good news is that roses with long canes are easy to grow and exhibit excellent disease-resistance and hardiness. With all garden plants, but especially roses, the gardener must take charge. Roses are vigorous shrubs and are kept in bounds and good health with annual pruning. Unlike vines, roses do not naturally climb and are best grown trained and tied to their sturdy support. Roses accept any type of soil with a pH of 6-7 as long as it is not wet. Plant roses in as much sun as you can give them. Think of them as tomatoes. They grow best in at least a half-day of full sun. The once-blooming types can take some light shade. For the first three years, exercise patience and simply allow them to get established and grow into thugs. Tie in the young canes

to their support using jute or plastic snap ties, and deadhead spent blooms to encourage repeat flowering. Remember, neglect curries their favor.

Once the rose covers its support or fills the allowable space, annual pruning and training are required to maintain it. Prune in late winter while plants are dormant. Remove the ties, prune out dead, broken, and crowded canes. Especially remove older canes in favor of younger ones. Choose healthy, stocky canes to fit the space, tie these chosen ones to their support, and shorten all laterals to about six inches. With vigorous once-blooming types, split the pruning: deadhead spent blooms and remove some crowded canes in summer after the bloom; tie in new canes formed over the summer; and tidy in spring by removing dead and broken canes and reducing wild laterals.

Deadhead repeat-blooming types through the growing season and tie in new canes. Fertilize in spring with a complete fertilizer. If insects attack the foliage, spray with insecticidal soap. No other care is required. Once established, roses growing into trees or covering buildings are left to fend for themselves. Occasionally prune out a dead cane.

Roses trained as climbers contribute romance, informality, and a touch of elegance to the garden that is unmatched among ornamentals. With a vast array of climbers, ramblers, and lax shrubs available to gardeners today, there is one tailor-made for nearly every garden situation. Since the queen of flowers is our national flower and part of our collective gardening memory, roses will always find a home where people make gardens.

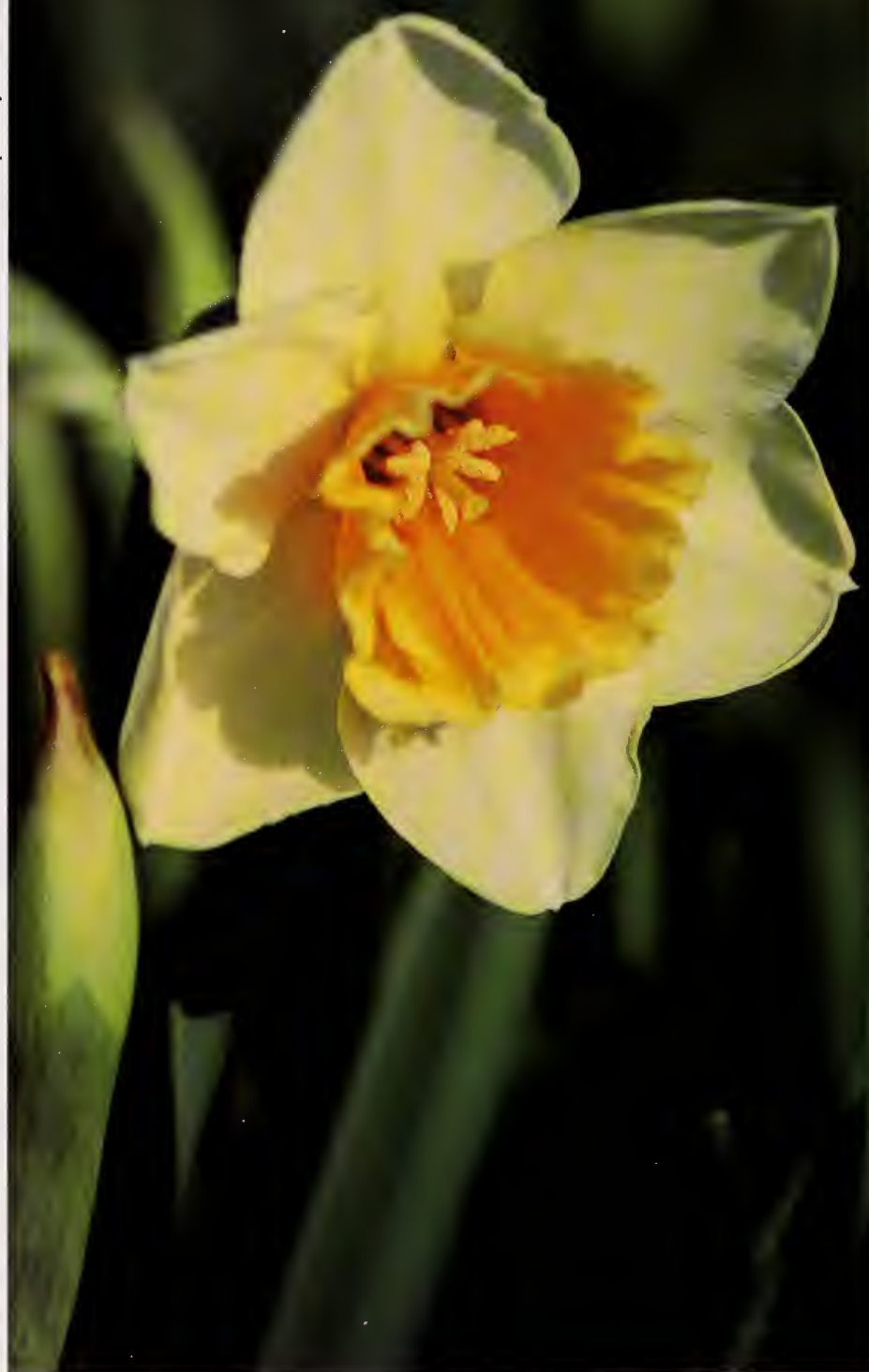
Mail-order Sources

Hortico, Inc.
723 Robson Rd.
Waterdown, Ontario
Canada L0R2H1
(905) 689-6984

Pickering Nurseries
670 Kingston Rd.
Pickering, Ontario
Canada L1V1A6
(905) 839-2111

Judith C. McKeon is the author of *The Encyclopedia of Roses*, Rodale Press, Emmaus, Pa., 1995. She is chief horticulturist and rosarian at the Morris Arboretum of the University of Pennsylvania.

If it's color *and* fragrance you're after, use 'Sweet Charity' — a showy bloomer that's creamy white with an "orange sherbet" cup and a musky fragrance.



Fragrant Trumpets



by Michael J. LoFurno

I sit by the window counting the days until the long winter will, at last, be over. The air is empty and the garden is quiet. Only the whistle of the wind and the spatter of seed spilling from the feeder disturb the empty solitude. Even the brave snowdrops are huddled beneath the earth. They'll be the first to break the winter silence and, only then, will it start to *look* like spring.

Even then it won't *feel* like spring 'cause it won't *smell* like spring. What I'm really waiting for is not the heady "Easter" smell of hyacinths or the sneezy scent of fresh-cut grass. I'm waiting for the trumpets — narcissi of every shape and size — to herald the spring with their month-and-a-half performance.

From the classic yellow to the more exotic peach, pink, and salmon, many *Narcissus* varieties are bred for size, shape, and color. For me, though, the more important criteria for selecting the right variety is fragrance. As soon as the spring trumpets begin to flower, I grab the shears and cut them for my table, my bath, my office, to bring the invigorating smell of spring indoors.

Have you noticed the varied fragrant *Narcissus* that are available? Maybe not, since many have no scent at all. Finding narcissi to tickle your nose takes a little effort, but the reward of delightfully fragrant cut flowers at winter's end makes the search worthwhile.

Brent Heath, a well-known grower (Daffodil Mart), has made breeding for fragrance a priority. He remarked that Estee Lauder recently visited his growing fields to sample and capture the fragrance of two varieties of *Narcissus* — 'Abba' and 'Cragford.'

Classification

Narcissus varieties exhibit a wide range of physical characteristics. Some are singly borne on long stalks, some are in clusters of three to five per stem, opening one at a time. They can bloom from April to May in our area, depending on the variety. Slight changes in the outdoor temperature have a huge effect on how long blossoms persist.

Narcissus is the botanical name for daffodils, jonquils, and "narcissus" — narcissi is the plural. In general, the big yellow ones are daffodils, the tiny long-cupped ones are jonquils, and all the others, usually two-toned are commonly called narcissi. The genus is broken into 11 "competitive classes." A list of some of the fragrant



Trumpets — *narcissi* of every shape and size herald the spring with their month-and-a-half performance. Finding *Narcissi* to tickle your nose takes a little effort, but the reward of delightfully fragrant cut flowers at winter's end makes the search worthwhile. The author strolls through display gardens, clipboard in hand and looks, touches, and — yes — smells the flowers. It's really the best way to shop.

varieties, by class, is included here. While only one "trumpet daffodil" is listed here — 'Spellbinder' — there are a number of "large-cupped" and "triandrus." For the largest selection of aromatic varieties, we must look to the "jonquils" and "tazettas" most of which are reported to be fragrant.

Some recommended varieties

Several **large-cupped** varieties are worth considering. For a refreshing vanilla scent, try 'Carlton' (light yellow) or 'Gigantic Star' (saffron yellow). Both are borne on 18-in. stems and are midseason bloomers. If it's color *and* fragrance you're after, use 'Sweet Charity' — a showy bloomer that's creamy white with an "orange sherbet" cup and a musky fragrance.

The **double narcissi**, while not *my* favorite, can be attractive in the proper setting. The clustered flowers of 'Erlicheer' are borne on eight-in. stems. This pungently sweet variety can also be forced indoors.

For a real fragrance treat, choose one of these **jonquils**: 'Baby Moon,' 'Sugarbush,' 'Suzy,' or 'Sweetness.' 'Baby Moon,' a miniature, is one of the more fragrant and the least expensive; soft yellow flowers are sported on seven-in. stems. 'Suzy' is a late bloomer and quite colorful — canary yellow with an orange-red cup. 'Suzy' has three or more flowers per stem and is a bit lanky and tall at 16 in. or more. I have faced it with snowdrops in a raised bed. The yellow blooms of 'Sweetness' on a 12-in. stem are a superb perennial that "excels in fragrance." The very sweet scent of 'Sugarbush' makes it one of Brent Heath's fragrance favorites.

For a more pungent scent, try one of the **Tazetta**, such as the musky 'Early Splendor.' Clusters of white flowers with orange cups are held aloft on 14-in. stems. These I have also placed in a raised bed and faced with



photo by Brent Heath. Daffodil Mart

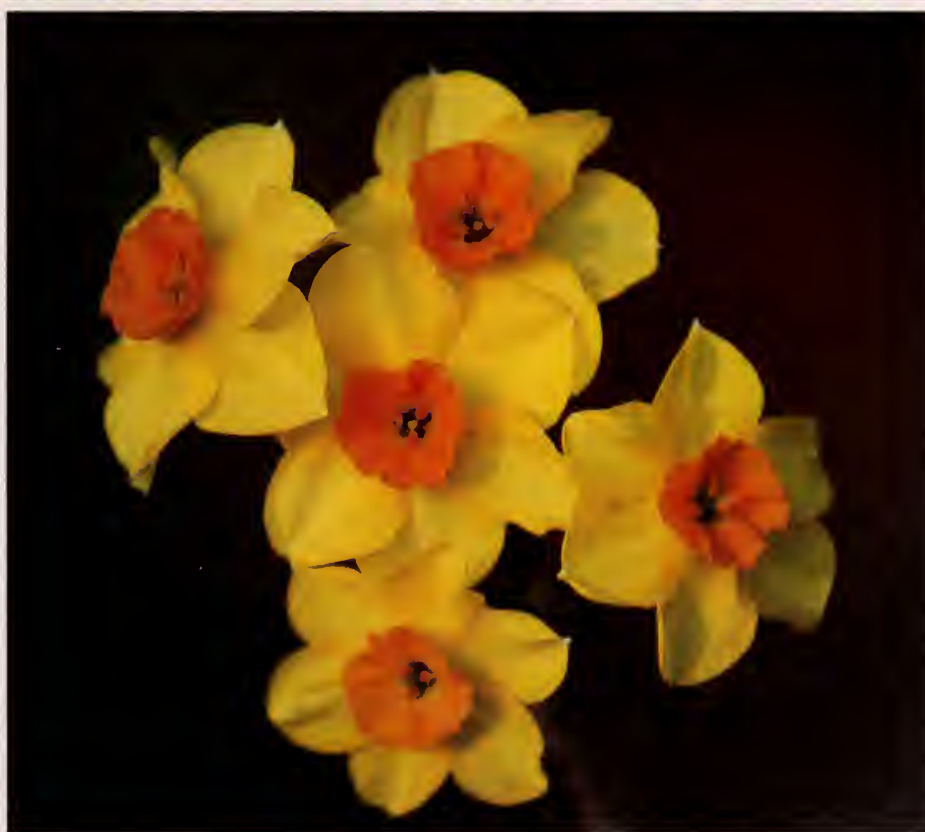


photo by Brent Heath. Daffodil Mart

Top: For a more pungent scent, try one of the Tazetta, such as the vibrantly colored 'Hoopoe,' shown here. **Bottom:** The finely scented *N. xgracilis* is a very late bloomer, and an outstanding finale to a long season of fragrant performances.



For a special treat, try 'Cantabile' for its nutmeg-like aroma.

snowdrops. The old-fashioned 'Silver Chimes' is an all-white multiflowering type that grows to 16 in. The most fragrant varieties are 'Canarybird,' 'Cragford,' 'Geranium,' and 'Hoopoe.' I have used 'Canarybird' just in front of Catawba *Rhododendron* and among *Hosta* spp. to give one area continuous seasonal interest. As the bicolored flowers fade the rhododendron buds begin to swell and the heart-shaped leaves of plantain lily begin their rapid growth, concealing the withering narcissus leaves.

Years ago, the *Poeticus* were the most desired, and with good reason. Their tiny cups and delightful scent make them a must for the garden — and for cutting. 'Actaea,' the old standby, grows to 16 in. and is white with a tiny red-banded yellow cup. For a special treat, try 'Cantabile' for its nutmeg-like aroma; this late-bloomer grows to 12 in. and is white with a green-and-yellow-rimmed cup. Each of the *Poeticus* listed in the chart is an heirloom variety, suitable for old-fashioned gardens. I have interplanted several varieties with woodfern and wood hyacinth, against a background of camas lilies and daylilies.

Last, and purest, are the *Species Narcissus*. Though several varieties are quite appealing, I would recommend the finely scented *N. xgracilis*. It is a naturally occurring hybrid of *N. jonquilla* and *N. poeticus* that grows to 14 in. *N. xgracilis* is a very late bloomer, and an outstanding finale to a long season of fragrant performances from your ensemble of trumpets.

Shopping

While color catalogs and descriptive listings such as this one can help to describe the various scented flowers available, the best way to decide which are most appealing to me is to shop for them in a garden setting. Both Charles H. Mueller Co. in

FRAGRANT TRUMPETS

DIVISION I — TRUMPET NARCISSI (DAFFODILS)

Source (See key at end of article)

Spellbinder	mild	16-18"	BB, DM, M, VE
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DIVISION II — LARGE-CUPPED NARCISSI

Carlton	vanilla	18-20"	DG, DM, M
Fragrant Rose	like <i>Rosa</i>	16-18"	DM
	'Tropicana'		
Gigantic Star	vanilla	18-20"	DM, M
Ice Follies	mild	16-18"	BB, DM, M, WF
Louise de Coligny	musky	14-16"	DM
Passionale	mild	16-18"	DM, S, VE
Salome	mild	16-18"	BB, DG, DM, M, S, VE, WF
Sweet Charity	musky	16-18"	DM

DIVISION III — SMALL-CUPPED NARCISSI

sweet spicy fragrance from *Poeticus* parents

Arguros	spicy sweet	16-18"	DM
Dreamlight	mild spicy	16-18"	DM
Edna Earl		14-16"	DM, M
Sinopel	spicy sweet	16-18"	DM

DIVISION IV — DOUBLE NARCISSI

Abba	very musky	16-18"	DM	
Bridal Crown	very fragrant	14-16"	DM	can be forced
Cheerfulness	musky	14-16"	BB, DM, M, S, VE, WF	
(& varieties)				
Erlicheer	pungently sweet	12-14"	DG, DM, M	can be forced
Pencrebar	sweet	5-6"	DM	miniature
Sir Winston Churchill	musky	15-16"	DM, WF	

DIVISION V — TRIANDRUS NARCISSI

generally fruity fragrance

Hawera	mild fragrance	5-6"	BB, DG, DM, M, S, VE, WF	miniature
Honey Guide	fragrant	12-14"	DM	
Ice Wings	light fragrance	12-14"	BB, DG, DM, S, VE, WF	
Lapwing	light fragrance	14-16"	DM	
Lemon Heart	light fragrance	12-14"	DM	
Liberty Bells	light fragrance	12-14"	BB, DM, M	
Petrel	fruity, very fragrant	14-16"	DM, S, VE	
Stint	light fragrance	12-14"	DM	
Thalia	sweet	12-14"	BB, DG, DM, M, S, VE, WF	
Tresamble	light fragrance	14-16"	DM	
Tuesday's Child	light fragrance	14-16"	DM, S, VE	

DIVISION VI — CYCLAMINEUS DAFFODILS / None

DIVISION VII — JONQUILLA NARCISSI

all reported to be fragrant (sweet honeysuckle or jasmine-like)

Baby Moon	highly fragrant	4-6"	BB, DM, M, S, VE, WF	miniature
Bell Song	sweet fragrance	12-14"	BB, DM, M, S, VE	
Buffawn		12-14"	DM	
Bunting		12-14"	DM	
Canary		14-16"	DM	
Dickcissel	light fragrance	16-18"	DM, VE	
Hillstar	moderately fragrant	14-16"	DM	
Lintie	light fragrance	8-10"	DM, S	
Orange Queen		8-10"	DM	
Pipit		14-16"	BB, DG, DM, M, S, WF	
Stratosphere		18-24"	DM, M	
Sugarbush	very sweet; strong	12-14"	DM	
Suzy	perfumed	15-17"	DM, S, VE, WF	
Sweetness	excels in fragrance	12-14"	BB, DM	
Trevithian	strongly sweet	16-18"	DM, M, WF	

DIVISION VIII — TAZETTA, POETAZ, OR POLYANTHUS NARCISSI

all reported to be fragrant (generally musky)

Source (See key below)

Avalanche	fragrant	16-18"	DM, M	can be forced
Canarybird	very fragrant	14-16"	BB, DM, M	
Cragford	very fragrant	12-14"	BB, DM, M, VE, WF	can be forced
Early Splendour	musky	14-16"	DM, M	
Falconet	strong fragrance	12-14"	DM	
Geranium	very fragrant	15-17"	BB, DG, DM, M, WF	
Hoopoe	very fragrant	15-17"	DM	
Minnow	light fragrance	5-6"	BB, DM, M, VE	miniature
Scarlet Gem		14-16"	DM, S, WF	
Silver Chimes		15-17"	DM, M, S, VE	

DIVISION IX — POETICUS NARCISSI

all reported to be fragrant (generally spicy)

Actaea		15-17"	BB, DG, DM, M, S, VE, WF	
Cantabile	nutmeg scent	12-14"	DM	
Felindre		16-18"	DM	
Milan	spicy	16-18"	DM	

DIVISION X — SPECIES & WILD

albus plenus odoratus	very spicy	12-14"	DM	
biflorus		12-14"	DM	
canaliculatus	sweet fragrance	4-6"	BB, DM, M, S, VE	can be forced
<i>xgracilis</i>	fine scent;	12-14"	BB, DM, S, VE, WF	
	strong			
jonquilla [=simplex]	very fragrant	6-8"	DM, M, S	
odorus campenelli	very fragrant	10-12"	BB, DM, M	
odorus plenus		10-12"	DM	
recurvus [=Pheasant's Eye]	spicy	10-13"	DM, M, S, VE	

DIVISION XI — SPLIT CORONA NARCISSI

Mondragon	apple fragrance	14-16"	BB, DM	
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SOME OF HEATH'S FAVORITE FRAGRANCES

II	Sweet Charity
IV	Erlicheer
V	Petrel
VII	Sugarbush
X	<i>xgracilis</i>

KEY TO SOURCE LIST

BB (95)	Bundles of Bulbs — 112 Greenspring Valley Rd., Owings Mills, MD 21117 410/581-2188 — fax 410/581-3085
DG (94)	Dutch Gardens — PO Box 200, Adelphia, NJ 07710 908/780-2713 — fax 908/780-7720
DM (95)	Daffodil Mart — 7463 Heath Tr., Gloucester, VA 23061 800-ALLBULB — fax 800/420-2852
M (95)	Chas. H. Mueller Co. — 7091 N. River Rd., New Hope, PA 18938 215/862-2033 — fax 215/862-3696
S (94)	John Scheepers — PO Box 700, Bantam, CT 06750 203/567-0838 — fax 203/567-5323
VE (95)	VanEngelen — 313 Maple St., Litchfield, CT 06759 203/567-8734
WF (94)	White Flower Farm — Litchfield, CT 06759 203/496-9600

New Hope, Pa., and Brent & Becky Heath's Daffodil Mart in Gloucester, Va., open their gardens to the public each spring. From late March to late May, visitors can stroll through the display garden, clipboard in hand, looking, touching, and — yes — *smelling* the flowers. It's really the best way to shop. In fact, Mueller's Nancy Gregory says their catalog has only a smattering of the varieties available; many more are on display in their garden and can be ordered for spring planting.

A personal experience

A final word about fragrance. Like colors or form in the garden, there are no absolutes. The nose can detect a smell and connect us with moments long past, or be registered forever for some future reflection. Our **experience** of an odor, it seems, can be as important as the chemistry that creates it. Each of us recognizes and translates fragrance in a unique way. Our language does not permit exactitude of description.

In her book *Woodland Garden*, Gertrude Jekyll categorized the smell of daffodils as rather rank. I disagree strongly. True, the old double-dutch daffodils have an earthy odor, but the great variety of fruity, spicy, and sweet aromas of many narcissi are quite pleasant. I'm not sure it would be spring without them.

Thanks to Brent Heath who provided valuable technical assistance with this article.

Michael J. LoFurno, a registered landscape architect and professional planner, is a principal of Composite, a Philadelphia-based planning and design firm. LoFurno has received several awards from the American Society of Landscape Architects. Together with Stephen Maciejewski, he has won Best in Show in the Container Grown Vegetables, Fruits & Annuals section of the 1995 Harvest Show, as well as awards in PHS's City Gardens Contest.

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COURTYARD GARDENING IN CONTAINERS

Coaxing plants into being with bits of space, sunlight and ingenuity



by Charlotte Kidd



In a basket for three seasons, early yellow *Erysimum* flowers die back leaving blue-gray foliage — an attractive foil for summer's blue *Lobelia* under creamy white yarrow flowers from the gardens at Mt. Vernon.

Come late January, my fingers itch for dirt. I retrieve a shoe box full of seeds from the fridge and browse: basil, parsley, violas. By mid-February I've succumbed to the urge, planting seeds in flats of ProMix on the dining room table. There's only one problem: I'm a year-round gardener with no land, an apartment dweller with a farmer's soul.

Beyond my back door is a small concrete 'courtyard,' 10 ft. wide, 25 ft. deep, surrounded on three sides by aging red brick walls. The courtyard and neighboring alley, gray and depressing when I moved in four years ago, inadvertently became my gardening niche. Today they are banked with woven baskets, wooden cabinets and deep drawers, bricked beds, plastic and fiberglass cylinders. From early spring daffodils to autumn roses to swiss chard at Thanksgiving, my urban greenery thrives in containers.

Welcome to the courtyard

It's like a jungle out here, my friend says as she pushes aside a vigorous Polish tomato vine to reach the kitchen door. We take our drinks back outside to enjoy the cool evening breeze after a sizzling summer day. She settles into a hefty wooden chair flanked by blooms and foliage thriving in what was once a kitchen cabinet frame. Blushing blossoms of *Hibiscus moscheutos* 'Southern Belle' wave at eye level. Miniature red roses peek from under a wayward cherry tomato branch. The scent of basil, purple and ruffled, wafts from window boxes on the basement entrance bulkhead.

Behind the chair, a collection of thyme and rosemary standards, lemon verbena, bay, oregano, jasmine, French lavender, flowering maple, and amaryllis stand tall in pots decked out on a long, narrow platform (1 1/2 ft. by 5 ft.) against the apartment wall.

The garden jungle began four years ago,



A sunny spot on sidewalk or patio is ideal for asiatic lilies, snapdragons, tomatoes, and jalapeno peppers grown in large plastic or fiberglass pots.

just inside the patio gate. A shady place to put a few of my favorite smiling-faced, rose-hued and cream pansies, I imagined. Then a neighbor stacked a couple pieces of lumber on the curb for trash pick-up. Just the right length (8 ft.) and height (6 in.) to box that corner, I calculated while dragging the planks to the patio. A coat of white paint and a few nails finished the job.

Within days pansies nodded happily front and center while delicate sweet woodruff and a sprinkling of primrose harmonized in the background. The only blight — slugs who slimed their way deep into the moist, rich mix of topsoil and leaf mold.

At the first hint of spring, hardy pansies in the sunny corner, dusted free of ice and snow, break into vibrant yellows and purples. To my surprise, crocus and narcissus, tucked in this shallow bed, continue to brighten the entrance — especially when the winter chill seems likely to linger forever.

Atop the fence, medium-sized pots of new and mature plants perch inside wire boxes. The three-year-old pot of temperamental tarragon prefers shade one week and a touch of sun the next. The *Fothergilla gardenii* 'Blue Mist' seedling from the Morris Arboretum of the University of Pennsylvania appreciates dry, but not scorched feet — a delicate balance in the summer heat. And the 20-year-old geranium of undetermined parentage, that's survived a dozen new homes, bursts into red

bloom all summer long.

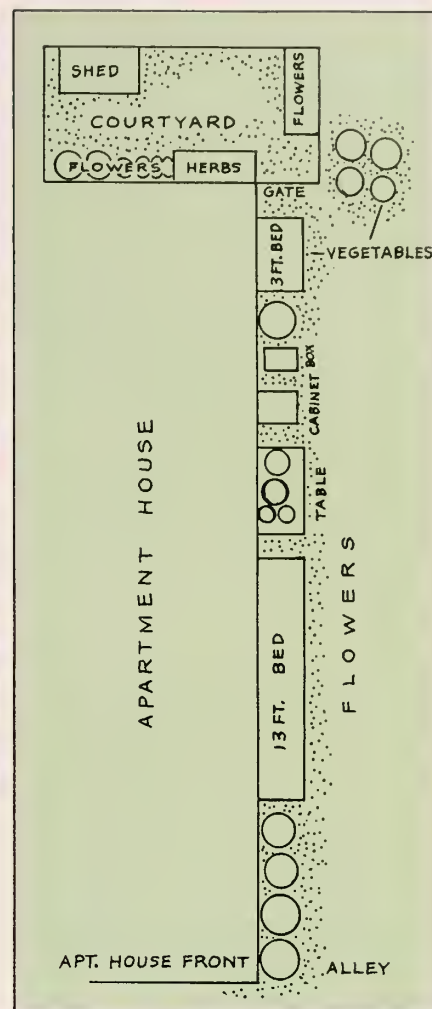
Suspended in a shady corner, a pendulous *Fuchsia* produces bicolored blossoms from June through September when watered (about twice weekly) and fertilized regularly with Electra. Retrieved three autumns ago from certain death in a landfill, the fuchsia grows leggy during winter months inside; spring shaping and repotting with bone meal are an amazing tonic.

On a white trellis at the kitchen window, deep green clematis foliage intertwines. The *Clematis* 'Alpina Willy' brings early spring cheer with small, delicate pale mauve-pink blossoms. Emerging in June, the C. 'Hagley Hybrid' rose-pink flowers continue color through August. Unlike many perennials, clematis appreciate a boost of lime to ensure slightly alkaline (pH 7.0-7.5) soil conditions.

A challenge for all seasons

In winter, the hibiscus, irises, lilies, day-lilies, clematis, lavenders, mints, azaleas, and roses huddle together against the building's brick wall, sheltered under leaves and pine boughs. The herb collection, a young rose of sharon (*Hibiscus syriacus*), and a tiny japanese white pine (*Pinus parviflora*) spend the cold months nestled in horse manure inside a tall, makeshift cold frame on the patio platform. During sub-freezing winter nights, a light bulb or thermostat-controlled heating mat warms the occupants.

Spring's warm sunny days are just right



for rejuvenating old friends who've made it through winter's freeze. The herbs, young shrubs and trees may seem the same size as when they entered the cold frame in November, but they've grown so much that their roots dangle out of the pots' drainage holes like toddlers' toes poking through last month's socks. It's a good time to root prune and repot, adding organic matter, green sand, bone meal, drainage material, and new soil mix. Pruning top growth compensates for root loss. Checking pH will indicate if it's time to increase alkalinity using dolomite lime or to increase acidity with coffee grounds, leaf mold. Clipping dead, dangling or leggy branches helps promote new growth.

The white pine seedling is a candidate for a larger 9 in. by 11 in. wooden octagon lined with slats of Styrofoam for insulation to help protect the containerized plant in a winter freeze. A rich helping of leaf mold and old manure helps retain moisture and provide nutrients for microorganisms.

After moving plants from the cold frame to the patio, I refill the frame with basil, lettuce, and pepper seedlings that germinated indoors in March, nurtured under grow-lights. Sheltered but outside, the tender shoots need to be watched closely, watered

CONTAINER GARDENING TIPS

With a bit of special attention and thought, growing vegetables, herbs, perennials, and bulbs in containers can be a delightful urban adventure.

Foremost things to consider:

- Available light
- Water
- Preferred plant habitat (temperature, growing medium [soil mixture], pH)
- Container type
- Fertilizer

Available light will determine realistic plant possibilities. Mediterranean plants such as thyme and oregano like a sunny, hot, dry, alkaline habitat. Sun lovers include tomatoes, roses, basil, snapdragons, asiatic lilies, swiss chard, peppers, clematis. Violets and sweet woodruff are woodland plants that thrive in dappled shade and moist, acidic soil. Lettuce, impatiens, tarragon, begonias like a shady spot, too.

Water involves a year-long dance to balance moisture, which roots must absorb, with drainage that promotes air circulation. Roots need oxygen for respiration.

Herbs such as lavender, thyme, oregano, marjoram, chives prefer to be well-drained and dry, which makes them easier to tend as container plants. Cluster them together in porous clay pots, adding a dose of lime and some sand to the soil.

Most flowers and vegetables, though, are thirsty. Plant with soil amendments to help retain moisture (leaf mulch, absorbent crystals, manure aged a year). When combining plants in one container, plant thirsty types together.

Preferred plant habitat:

Basic soil mix:

- 2 cubic feet compost/leaf mold
- 1 cubic foot (1 cu. ft. = 2 gallons) garden-grade topsoil
- 2 cubic feet ProMix
- (or 1 cubic foot vermiculite or perlite and 1 cubic foot peat moss)

In some cases, add 2-3 cups sand for drainage: e.g. for plants that like dry conditions or need good drainage such as rosemary, lavender, thyme

Amendments:

- 3/4 cup ground limestone
- 1 cup dried blood or blood meal
- 2 cups bone meal
- 3 cups greensand marl or granite dust
- 1 quart package dried manure (or manure at least six months old; the older the better)

Healthy soil consists of 50% air to support plant and bacterial respiration. Good drainage is crucial; drainage holes are imperative. Placing wire mesh over drainage holes will reduce soil loss. Cover the bottom of the container with perlite, builders or coarse sand, or broken pottery shards. Fill with soil mixture to within 2 to 3 inches from top; water; then place plants. If needed, top off with more soil in a couple of days. Leave room for water to pool rather than run off.

Containers: Thirsty plants grow better in plastic or glazed containers that minimize moisture loss. Plants that need dry, well-drained roots do well in clay pots. All containers must have drainage holes.

Consider large fiberglass, wood, cast stone containers/tubs for wintering over hardy plants (Zone 6 or below). Water plants well before the ground freezes in late fall. Mulch generously with several inches of shredded bark, wood chips, leaves, evergreen boughs. The plastic Wallo'Water Teepees, filled with antifreeze, extends the growing season and provides extra winter protection. (Available from good garden supply centers and mail order sources.)

Fertilizers: Planting with organic amendments will get your seedlings off to a good start and provide healthy nutrients over time, especially important for plants confined in containers. Organic fertilizer products supply additional nitrogen, phosphorus, potash/potassium and trace elements that enhance the growing medium as well as nurture the plant. Fish emulsion, kelp solution, Espoma products, Electra are examples of organic fertilizers, foliar and ground, that provide valuable major and macro nutrients over time, the way food in a healthy diet does for us. They also improve the soil by providing nutrients for microorganisms and promoting air exchange in the soil. Also consider coffee grounds (2-.3-.5); bloodmeal (15-1-.5); horse manure (.7-.3-.6); leafmold (quick potash, very acidic).

Concentrated chemical fertilizers (manufactured or purified salts) tend to raise soil salinity and degrade the soil. They give plants a quick boost but they don't improve plant habitat. In *The Complete Urban Gardener*, author Joan Puma likens them to a diabetic eating too much chocolate cake. If you must use chemical fertilizers, reduce the dosage by half or less. Between feedings, dose with water to leach salt residue from the soil.

The slow-release fertilizer pellet, Osmocote, is a once-a-season alternative.

A balanced fertilizer promotes overall plant health although some plants could use a special boost of one element depending on your goal.

Nitrogen promotes green foliage and active vegetative growth.

Phosphorus promotes flower formation and plant maturity to seed.

Potassium helps plant cells manufacture and transport starches, sugars, and other carbohydrates that produce stiff stalks and healthy, disease-resistant growth. Potash promotes root growth, so it's especially important for root crops (beets, potatoes, carrots) and flower bulbs (tulips, dahlias, daffodils).

Check pH. Soil pH is the key to enabling plants to consume fertilizer and nutrients. When the pH is at the proper level, nourishment in the soil is available, "unlocked" for the plant to use. Most flowers prefer slightly acidic soil, pH 6.5-7.0. Lavender, clematis, baby's breath, pinks, delphinium, bearded iris thrive in slightly alkaline soil, pH 7.0-7.5. If the pH is too high (alkaline) or too low (acid), plants can't access soil and fertilizer nutrients. Specific plant requirements vary, so check a reference book or plant clinic for details.

Watering with city or well water may alter the soil's pH. To make soil more alkaline, add carbonate or ground dolomite agricultural limestone. To increase acidity, add coffee grounds, leafmold, pine needles, sulfur.

Other information: Perennial herbs and plants carried from season to season will fill increasingly larger containers. To contain their growth, root prune during dormancy or spring transplanting. Remember to prune top growth too.

regularly, and kept at a comfortable temperature.

Around the corner in the alley, green morsels sprout early in a 1 ft. by 3 ft. salad bed banked by cinder blocks and red bricks. The adjoining apartment wall radiates enough warmth for lettuce, parsley, coriander and swiss chard to get a head start in March and grow until a hard freeze. Brushing back the snow to clip a few fresh parsley sprigs gives me a self-satisfied thrill.

Checking the condition of the large perennials and shrubs begins in spring and continues throughout the growing season. Going into its third spring, the bushel basket of *Veronica spicata* 'Blue Charm,' *Lavandula lanata*, and *Thymus serpyllum* needs a facelift. Lining a new basket with canvas, I shovel in leaf mold, replant with a soil/sand/organic fertilizer mix, and top with a splash of canary-yellow pansies. The perennials enjoy a similar environment: average, well-drained soil; sunny, dry conditions. The pansies surrender to summer heat as asiatic lilies, in an adjoining tub, bloom soft yellows and oranges, pale pinks and mauves.

Miniature rose bushes, orphans retrieved from a fruit stand's trash bin, survive winters in overly large plastic containers to better withstand temperature fluctuations. Come spring, they just need leaves dusted off, dead twigs pruned, and organic fertilizer poured into holes poked deep in the soil mix.

Summer tending involves a balancing act of keeping the soil mix moist to ensure transpiration yet sufficiently drained to allow air circulation for respiration in root cells. Incorporating organic matter — dehydrated or old manure, leaf mulch, leaf mold, compost — into soil at planting helps retain moisture all season. Organic materials contribute to healthy soil, which is easily depleted of nutrients within the confines of containers. Commercial absorbent crystals, e.g. Terrasorb, have worked well in my tomato and basil containers, noticeably reducing watering demands.

photo by Charlotte Kidd



In the daylily bed abutting the apartment, *Hemerocallis* 'Corner Stone,' *H.* 'Eleanor Apps,' and *H.* 'Obediah' bloom apricot, lavender, and gold — a refreshing combination in summer heat.

As last summer's drought persisted, aesthetics gave way to survival. Plants on the patio and daylilies along the alley drank courtesy of a porous soaker hose that sweats water droplets — a successful arrangement I'll continue this year.

In the alley bed, a daylily rainbow shines from early to mid-summer. *Hemerocallis* 'Corner Stone,' apricot; *H.* 'Eleanor Apps,' lavender; *H.* 'Celsa Pecan,' pink with dark eye; *H.* 'Obediah,' gold; *H.* 'Alma Pride,' yellow with mahogany eye; *H.* 'Velvet and Gold,' and the late *H.* 'Little Squirt,' red — all from the Delaware Valley Daylily Society's pre-Labor Day Sale. Planted in complementary color groups, the flowers thrive in a long, narrow bed composed of several sturdy drawers and cabinet frames, with drilled drainage holes. Red bricks edge the bed, which is about 14 in. deep, 2 ft. wide, 13 ft. long.

Through the years, friends' gifts — yellow dogstooth violets (*Erythronium dens-canis*), daffodils, *Viola labradorica*, siberian iris — have made their way into the alley's rich bed. From spring through late summer, the perennials benefit from several feedings of organic fertilizers. I also encourage bloomers with foliar feedings and extra watering.

As autumn brings shorter days and cooler

temperatures, plants slow their growth. To help the azaleas and vigorously growing shrubs and perennials withstand winter's extremes, I repot with organic fertilizer in larger containers buttressed with insulation material.

Teasing soil away from root clumps for a closer look-see in the alley bed, I can't believe summer's over. Pleased we've made it through another growing season, I unearth daylily roots and violet clumps to share with neighbors.

As I spread bone meal below where the rhizomes and bulbs will rest, I wonder: Dare I try a foxglove or three? Would a cylindrical tub brimming with asiatic lilies get enough sun here? By covering the basement grate, I can extend the alley bed another three feet. . . .

Recommended Reading

The American Horticultural Society Encyclopedia of Gardening, editor-in-chief Christopher Brickell, Dorling Kindersley Inc., New York, 1993

The Complete Urban Gardener, Joan Puma, Harper & Row Publishers, Inc., New York, 1985

The Contained Garden, Kenneth A. Beckett, David Carr, David Stevens in cooperation with The Institute of Urban Horticulture of the New York Botanical Garden, Penguin Handbooks, The Viking Press, New York, 1983

Charlotte Kidd learned to garden organically on pockets of land in Monroe County, Pa. Since moving to the Philadelphia area, she's adapted that environmental and horticultural penchant to container gardening. A freelance writer and editor of Philadelphia Green's Tree Tenders' newsletter, *Philadelphia Treebune*, she's also studying horticulture at Temple University's Ambler campus.

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LETTER TO THE EDITOR

"Between the Cracks"

by Michael J. LoFurno (Nov./Dec. 1955 *Green Scene*)

I'm afraid there will not be a "hint of the country" even in the country if all of us, "collected" mosses from various travels in the hinterlands. . . . I'm reasonably sure that P.H.S. does not condone collecting plants from the wild so I'm not real sure

why you would print such a comment in your otherwise wonderful magazine?

Perhaps I'm mistaken and Mr. LoFurno meant to say "purchased" and not "collected." If he, in fact, has purchased mosses, I would love to know his sources out there in "the hinterlands."

William G. Simeral Jr.
Kennett Square, Pa.

Michael LoFurno replies:

Although I used the phrase "collected" mosses from various travels in the hinter-

lands," this was a somewhat poetic version of the truth. In my work, I am often called upon to mitigate the anticipated development of sites. Sometimes, plants can be transplanted on-site; sometimes they cannot. Prior to grading and earthwork, I have several times "collected" plants, stones or other finds from sites that are about to be developed. Although I used the word "collected," the term "rescued" would have been more accurate. The collection of wild plants from their native habitats is not encouraged, and I always recommend the use of propagated or "rescued" plants.

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High, tall, floating *Thalictrum*
rochebrunianum 'Lavender Mist'
photographed at Brooklyn Botanic Garden
in September. See page 14 for a closeup
of this promising perennial.
photo by Bob Hyland



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*J. Liddon Pennock, Jr.
on the cutting edge of
Hedges for Edges. See page 14.*





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Front cover: J. Liddon Pennock, Jr., suggests planting low hedges throughout your landscape as a subtle but effective way to unify the design. At Meadowbrook Farm, he uses them in the formal garden areas to complement his extensive collection of finely trimmed topiaries. Photo by John C. Gouker.



Grow with us.

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the green scene / march 1996

Use Cold Frames in Spring and Summer to Create Your Best Garden Ever – Part II

This is the second of two articles on the year-round use of cold frames in the garden. Part I "Flower Gardening Outdoors in Winter" appeared in the September 1995 issue of *Green Scene*.

 by Art Wolk



A mid-summer flower border in Art Wolk's New Jersey garden. The author first planned drifts of preferred color, then matched specific flowers to the drift sketches (see next page). Wolk planted some seeds indoors, and after germination, around mid-March, moved them to his cold frames to achieve a garden boasting more than 1,200 plants.
photo by Art Wolk

Use Cold Frames . . .

photo by Art Wolk

The worst of the winter is over and the botanical world around us is coming back to life. We gardeners are burgeoning with the energy and hope of the growing season to come. The seeds, soil, and cold frames await us, and we're ready to take on gardening projects we wouldn't have dreamed of in the heat of the previous summer.

Before taking off into the backyard with mad abandon, stop. Henry Wadsworth Longfellow best described the spring gardener when he said, "Aside from the Garden of Eden, man's greatest temptation took place when he first received his seed catalog." The colors, the pictures, and the anticipation are almost overwhelming. We're no better than the hungry party host who plans the menu while shopping in the supermarket. Why do we never dream of buying a couch without making sure it's just right for the living room, but we go on a spending spree at the local garden center without first planning the color combinations and locations for our plants? More than anything else, it's the surging energy and enthusiasm of spring. But like the good interior designer, we need a plan to produce the best results.

Although I'm as guilty as anyone of growing thousands of seedlings without a plan, it wasn't until I finally sat down and drew up a plan that I produced my "personal best" garden. I was tired of coming home from Longwood Gardens and getting depressed when I looked at my own backyard. I finally decided I needed a real plan to have a high-impact garden.

The cold frame is my number one aid in making a gardening plan a reality. It isn't just a place to produce seedlings, it has a number of uses. Here are some of the ways I've used them to create a planned garden.

Planning begins

I began by using an enlarged survey of our property. I drew in flower beds, and then the shapes of the drifts within the beds. Next I filled in the drifts with the colors I wanted throughout the entire garden before I even began to think about the flowers that would produce the colors.

Everyone has their own color preferences. And although pastels are now in vogue, I'm partial to bold yellows and reds. Of course my garden isn't limited to those colors, but I tend to use them freely to give my garden a sense of excitement. I do this by moving the viewer's eye from drifts with color of low intensity toward the colors with greater saturation. This is also ac-



Starting with a property survey of the backyard, the contours of the flower beds are drawn, followed by the shapes of the individual drifts. Colors of the drifts are added. To give a sense of motion, drifts "move" from areas of low to high color saturation.

complished by varying the shapes of the drifts themselves.

Finally, **after** sketching in the plan, I decided which flowers would supply the colors. I wanted this garden to be without gaps, so I selected perennials that would bloom for at least six weeks in the summer (e.g. coreopsis, coneflowers, *Rudbeckia fulgida* 'Goldsturm,' and hardy hibiscus). The annuals would be those that produce a blanket of color and need minimal care: e.g. begonias, impatiens, and vinca.

My plan gave me the approximate sizes of each drift of color. Using these measurements I was able to determine the number of plants I needed to fill in each drift. By adding up the totals, I could then

By using cold frames I found that I had grown mature plants for this garden at one-fifth the cost of purchase at a garden center.

order the seeds for the plants I would use to "paint" my garden. For the garden shown here, I needed approximately 1,200 plants.

The smallest seeds, like begonias, had to be sown in February under fluorescent lights. The majority of seeds, however, were started after March 1. I grew virtually all my plants in flats that have eight six-packs, or 48 plants per flat. For larger plants, I used flats with 24 slots or cells. As a general rule, most of the plants can be moved out to cold frames after they form the first set of true leaves. (The first "false"

leaves are the cotyledons.) By the second week in April, virtually every plant is in my cold frames.

In the beginning, I listen for the evening weather forecast. If it's going to be a frosty night, I close my frames while the sun is still out in the late afternoon and cover them with old blankets. This helps store the heat accumulated during the day. The only plant that needs extra coddling is heliotrope. It can be injured by temperatures below 45°F, so I bring them inside on cold nights.

At the other extreme, spring weather can turn quickly towards summer. If the temperature inside your frame is usually 20°F warmer than the outside temperatures, you'll need to raise the sashes when it gets above 55–60°F to prevent your plants from being heat stressed. (I use a max-min thermometer to gauge daily temperature variations inside my frames.) Some frames come with automatic sash openers that can be set at the appropriate temperature, but I simply use strips of wood to prop the sashes open.

Whether you start your plants under fluorescent lights or at a sunny windowsill, the careful orchestration of the move to the outdoors is important to acclimate your seedlings to the full spectrum of sunlight. To avoid sunscald, raise the lids of your cold frames a little higher every week, weather permitting.

By about May 10, your plants should be used to full sun and ready to be transplanted and begin growing immediately. These seedlings will be much better than the ones available at your local nursery, since those are mainly grown in greenhouses. As such, they don't get a full dose of ultraviolet light, which doesn't penetrate glass. That's why transplanted nursery plants do nothing for two to three weeks, except sometimes get scalded leaves.

My 8-ft. x 4-ft. frames hold 16 flats, or about 800 seedlings. So two frames had more than enough room to acclimate (harden-off) the 1,200 plants needed for my planned flower garden. After loosening the soil in the flower beds, I began transplanting the seedlings into the drifts specified in my garden plan, adding fertilizer and a pine needle mulch. For the plants that would grow over two feet tall, I added bamboo stakes immediately after planting. I also strung plastic-coated wire among the stakes so these plants could actually grow through the framework. It's certainly easier to do this at an early stage than after thunderstorms have battered down your tall plants.



This cold frame, at "Victory Garden-South" in Callaway Gardens, Georgia, uses slots in the sashes as a way to hold windows at the proper height.

What a joy it was to watch my plan become a reality. By mid-July, my view from an upstairs window closely duplicated my drawing. Watering and weeding were held to a minimum because of the mulch. Aside from watering and removing some spent flowers, the worst of the work was over after the chores of transplanting. In fact, many of the flowers I'd chosen, like impatiens, begonias, and vinca needed no removal of dead flowers — they groomed themselves.

This flower garden was the best I'd ever produced, and it was my cold frames that had made it all possible. Most important, I found that I had grown mature plants for this garden at one-fifth the cost of purchase at a garden center.

After hardening off seedlings, many gardeners retire their cold frames for the season. But I use my cold frames throughout the summer for a variety of purposes. In effect, they're used for growing every day of the year.

Raised beds for vegetables

As described in Part I (*Green Scene*, September, 1995), the soil in my area is very clayey. I live near Marlton, New Jersey, so named for the town's sticky marl clay. The first year I grew tomatoes in this garden, they died after the first sopping rain of summer forced all the oxygen out of the

soil. Unless I wanted to grow rice, I knew I'd have to use raised beds to produce the vegetables I savor. As it turned out, my cold frames became the perfect growing area.

Most of my 4-ft. x 8-ft. frames are an ideal size for growing vegetables in raised beds. They're large enough to grow any vegetable plant, but small enough to weed, water, fertilize and harvest from outside the growing area. This minimizes soil compaction and creates a better environment for root growth.

The cold frame sashes come off as soon as I finish transplanting my flower seedlings. Then the soil in the frames is double dug. This process increases my yields by as much as 50% for two reasons: first, double digging enables the gardener to plant crops closer together; and second, it provides ideal conditions for root growth, which leads to healthier plants.

Since each cold frame is only 32 sq. ft., it's not too backbreaking to prepare each bed. To double dig, I remove an 18-in.-wide by 12-in.-deep swath of soil from inside the frame and put it in a wheelbarrow. Next, I add an 8-in. layer of ripened compost or other organic material to the top of the underlying soil, then rototill or shovel it into the subsoil. Then, I remove the next 18-in. swath and place it on top of the freshly mixed section of subsoil in the cold frame.

continued



By early May, cold frame sashes are raised all the way up. At this point, the seedlings are completely acclimated to full sun and are ready for transplant.

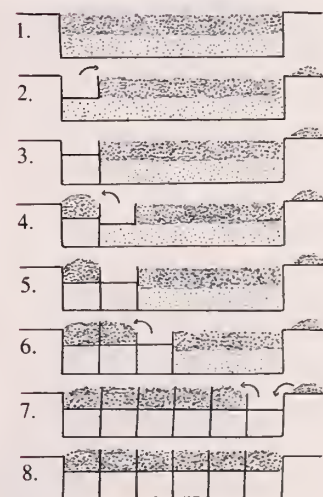


illustration by Beth Wolk

The process of double-digging:

- 1) Soil in the cold frame: topsoil and subsoil.
- 2) Remove and put aside the first section of topsoil.
- 3) Add organic matter and shovel or roto-till into the subsoil.
- 4) Add the next section of topsoil to the top of the improved subsoil in the first section.
- 5) Thoroughly mix organic matter with the subsoil of the second section.
- 6 & 7) Continue process until the subsoil of the last section is improved.
- 8) Add the topsoil from the first section to the subsoil of the last section. Cultivate the surface and rake smooth for a fluffy mix . . . the perfect place for vegetable roots to grow.

Use Cold Frames . . .

I repeat this process until the last swath of topsoil is removed from the frame and organic material is mixed with the last section of subsoil. Then, I put the topsoil from the wheelbarrow onto the last section of freshly mixed subsoil. After rototilling (or shoveling) and raking the soil smooth, I have a "class A" growing bed. The soil is so fluffy that, with little effort, I can use one finger to push my pitchfork all the way down into the soil. In effect, double digging has created a two-ft. layer of topsoil.

Next, I transplant vegetable seedlings. Like every other American gardener, I have tomato seedlings ready and waiting. By using flats, I also germinate pole beans and corn ahead of time. This eliminates the problem of birds or burrowing animals stealing the seeds. It also reduces the time until harvest. The plants are about three weeks old and have already been hardened off when transplanted.

I usually have two cold frames/raised beds for corn. One for early and one for late corn. My favorite early corn cultivar is Earlivee II; for late corn, I grow Springdance (both available from Stokes Seeds**). As soon as I started to double dig, I found that the same cultivar would yield a much higher percentage of stalks with two ears. Some plants even sent out new shoots from underground that gave me a third ear! Early corn is usually picked by mid-July, so by planning accordingly, another crop of corn seeds can be started in flats at the end of June for transplant into this same bed after the first harvest.

To grow beans, I use an 8-ft. x 8-ft. scaffold that has ropes 6 in. apart, strung top to bottom for support. Since the cold frame is four ft. from back to front, there's room to erect two scaffolds. I put four rows of beans in the cold frame/raised bed, with two rows for each scaffold. There are 15 ropes per scaffold, or 30 ropes per raised bed. Two plants share each rope, so there's room for 60 plants in a raised bed. My favorite pole bean for this system is 'Blue Lake.' We freeze a lot of the beans from this raised bed, and they last well into the winter.

My wife Arlene puts up with a lot of craziness from my gardening obsession all year long. What she expects in return is a profusion of perfect tomatoes. So, I rush tomato plants along to get ripe ones as early as possible. By the time I plant my seedlings into the raised beds, they've already been transplanted at least once into

larger growing containers. One year, I even had ripe tomatoes on June 23. That came from a "seedling" that was a stocky two-ft. tall when planted.

I use concrete-reinforcing material, called re-bar***, as support for my tomatoes. I curl it around to make five-ft.-tall cages, 20-24 in. in diameter. This ideal material is strong and the holes are large enough to pull even the largest fruits through. Eight plants go into each raised bed/cold frame. To keep my wife supplied with tomatoes, I

After double digging, the soil is so fluffy that, with little effort, I can use one finger to push my pitchfork all the way down into the soil.

grow 16 plants using two raised beds.

I think the reason that tomatoes grow so well in Jersey is because tomatoes love well-drained sandy soils. But since my existing soil is clayey, I had to improvise. The double-dug raised beds were the answer. Even after a drenching rain, there's no standing water. My tomatoes flourish in this system, rewarding me with a high yield. By mid-August when the plants approach 7 ft. tall and need extra support, I put bamboo sticks into the top of the re-bar and interconnect them with twine.

Our favorite cherry tomato cultivar is 'Sweet 100,' providing us with a plentitude of fruits all summer. The other cultivars we grow are 'Big Girl' (our #1 pick for taste and season-long performance), 'Park's Whopper,' 'Early Girl,' 'Burpee's Supersteak Hybrid,' and 'Big Beef.' One last cultivar worthy of mention is Burpee's 'Heatwave Hybrid.' Instead of dropping its flowers in the hot weather, it continues to set fruit — a real bonus during the kind of summers that we've been getting.

My last raised bed is a 4-ft. x 4-ft. cold frame. I usually reserve it for peppers or eggplants. My favorite pepper for high production spread over a long season is 'Sweet Banana'; for eggplants, 'Vittoria Hybrid.'

When watering my raised beds, I use a 5-ft. wand that reaches all parts of the growing area. By using a 6-in. layer of mulch all summer, I reduce watering and weeding chores. The raised bed brings the plants up closer to eye level, so it's easier to keep track of pest or disease problems when they're getting started. Above all, this

system works well because it isn't necessary to step onto the soil in which the plants are growing. Everything — from planting, to maintenance, to harvest — is done from outside the raised bed.

The collection area

Gardeners are incurable collectors, and although you may solve one problem by creating a *planned* flower garden, what's missing is a place for your lifelong collection. I used to stick my bonsais, topiaries, dwarf evergreens, and other collectibles on the ground near a fence in the summer. It was hardly the place to show off plants that I had coddled for years, but finally I hit upon a solution.

The cold frame that I had used to house these same plants in the winter and harden-off seedlings in the spring was made from 1-in. x 12-in. pieces of lumber. By taking off the top two layers and adding a bench made of 1-in. x 6-in. lumber screwed to a framework, I had a potting bench/exhibition table. This transformation from cold frame to display bench takes about 30 minutes. It not only brings the plants up closer to eye level, but also makes it easier to wire bonsais, prune topiaries, and accomplish general daily maintenance. It also means that the precious 32 sq. ft. that my largest cold frame occupies are being put to use year-round.

A rooting/shade frame

In Part I, I mentioned that one of my cold frames is used in the winter to hold back certain pots of bulbs, like crocus or iris, that are growing too fast before exhibiting at the Philadelphia Flower Show. The frame is surrounded by a fence and shed, so that no sunlight hits it. This makes it the perfect place in the late spring and summer to root cuttings. I've rooted chrysanthemum, azalea, forsythia, lilac, and many other plants inside the frame. For those of you with shady gardens, simply find an area without sun for your rooting frame.

The top 6 in. of soil in my rooting frame is half sand, half sphagnum peat moss, thoroughly mixed and moistened. Cuttings are dipped in rooting hormone and put into this frame. The lid is kept shut, which creates a terrarium-like environment inside. After a few weeks, I lightly tug on the cuttings to see if roots have formed. Eventually, the rooted cuttings are transplanted to their own containers and gradually acclimated to increasing light conditions.

This technique is especially useful to

**Stokes Seeds, Box 548, Buffalo, NY 14240 (Phone: 716-695-6980).

***Available at Home Depot or Builder Square stores.



Left: Double-digging dramatically increases yield. Note corn with two ears is sending up a second stalk to yield a third ear.

Above: The vegetable patch in late spring: 8-ft. x 8 ft. scaffolds are bolted to cold frame to provide support for 60 bean plants. Cold frames gave plants an early and vigorous start.

Below. This large cold frame has three jobs during the year. It protects bonsais and topiary in the winter, hardens off seedlings in the spring, and is converted to a display/potting bench in summer.





root large numbers of chrysanthemum cuttings. There's enough room in a 4-ft. x 4-ft. frame to produce hundreds of plants. If started on May 1, they're usually far enough along by June 1 to begin acclimatization to the sun.

Cuttings from evergreen azaleas are best taken at the end of July when the new wood is starting to mature. Deciduous azalea cuttings are best taken just after the current season's growth is finished, but the wood is still soft. I put both types in their own containers after they've rooted and gradually acclimate them to conditions outside the frame. But, I don't usually plant them in their final outdoor location for their first winter. Instead, I let them ride out the winter back inside the same frame in which they were rooted. In the spring, they're moved outside for good.

Late summer and early fall activities

As the summer starts to wane, the outdoor growing year slowly comes to a close. After the first freeze, I start to disassemble the flower and vegetable garden and put most of my garden waste into a compost pile. Some of the soil is removed from the raised beds so that they can be converted back into cold frames for the fall. With the addition of the stored sashes, the cold frames are put back to work as growing areas for cool-weather biennials and perennials and for potted bulbs.

Since evergreens need the cold temperatures of fall to induce dormancy, I delay putting these into a cold frame until after Thanksgiving. At that point, the display bench is converted back into a cold frame for the topiaries, bonsais, and dwarf evergreens. Then, everything is ready for the winter to come.

Finally, the yearly garden cycle has swung around again to its starting point. And, like the golfer at the 19th hole, mistakes and failures are quickly forgotten and the dreams of tomorrow take hold. Perhaps next year the spring frosts will end sooner, the summer sun will be less harsh, the rain plentiful, and my flowers and vegetables will all live up to their descriptions in seed catalogs.

Next year brings the promise of an even better garden and, more than anything else, I know my cold frames will be there to help make it all possible. In looking back on the different projects I've described for cold frames you may find some of them a bit daunting. But you can pick your own level of satisfaction, whether it's a high-impact flower garden or a single pot of forced daffodils. Fast Eddie Felson expressed it best in the movie 'The Hustler' when he said, "... anything can be great. I don't care, brick laying can be great. If a guy knows what he's doing and why, and can make it come off."

I hope these articles on cold frames have given you some ideas, know-how, and perhaps even some inspiration to create your own bit of greatness in your garden.

Seed Companies for Flower Garden

Park Seed Company, Inc.
Cokesbury Road
Greenwood, SC 29647-0001
(800) 845-3369

Stokes Seed Co.
P.O. Box 548
Buffalo, NY 14240-0548
(800) 263-7233

Thompson & Morgan
P.O. Box 1308
Farraday & Gramme Avenues
Jackson, NJ 08527-0308
(800) 274-7333

W. Atlee Burpee Co.
300 Park Ave.
Warminster, PA 18991-0001
(800) 888-1447

Art Wolk lives in Voorhees, New Jersey, and has been exhibiting at the Pennsylvania Horticultural Society's Philadelphia Flower Show since 1979. In 1995 he won the Grand Sweepstakes Award in the Competitive classes. He has lectured widely on a variety of garden topics, and has appeared twice on the Discovery Channel. He is the president of the South Jersey Horticultural Society.

This cold frame receives no sunlight, so it's used to hold back bulbs being forced for the Philadelphia Flower Show in late February, early March, and is used to root cuttings in the spring and summer.

Plant List for Flower Garden

Plant Name	No. of Plants
<i>Ageratum</i> 'Adriatic Improved'	15
<i>Ageratum</i> 'Blue Horizon'	10
<i>Amaranth</i> 'Illumination'	24
<i>Begonia</i> 'Espresso Rose'	66
<i>Begonia</i> 'Espresso Scarlet'	66
<i>Begonia</i> 'Espresso White'	66
<i>Begonia</i> 'Lotto Red'	30
<i>Catharanthus</i> 'Pretty in Pink' (Vinca) ..	24
<i>Catharanthus</i> 'Pretty in Rose'	24
<i>Catharanthus</i> 'Pretty in White'	30
<i>Celosia</i> 'Scarlet Castle'	15
<i>Celosia</i> 'Yellow Castle'	18
<i>Coleus</i> 'Scarlet Poncho'	40
<i>Convolvulus</i> <i>tricolor</i> 'Blue Ensign' (Dwarf Morning Glory)	20
<i>Coreopsis</i> 'Early Sunrise'	20
<i>Dahlia</i> 'Sunny Yellow'	8
<i>Echinacea</i> <i>purpurea</i> , (Purple Coneflower)	12
<i>Echinacea</i> <i>purpurea</i> 'Magnus' (Coneflower)	10
<i>Heliotrope</i> <i>arborescens</i> 'Marine' (Heliotrope)	12
<i>Heliotrope</i> <i>arborescens</i> 'Mini-Marine' ..	12
<i>Heliotrope</i> <i>arborescens</i> (formerly <i>Heliotrope</i> <i>peruvianum</i>)	10
<i>Hibiscus</i> <i>moscheutos</i> 'Southern Belle' ..	2
<i>Impatiens</i> 'Rosette'	8
<i>Impatiens</i> 'Super Elfin Blush'	15
<i>Impatiens</i> 'Super Elfin Red'	15
<i>Impatiens</i> 'Super Elfin White'	15
<i>Ipomoea</i> <i>tricolor</i> 'Heavenly Blue' (Morning Glory)	110
<i>Nasturtium</i> 'Whirlybird Scarlet'	15
<i>Nicotiana</i> <i>alata</i> <i>grandiflora</i> 'Fragrant Cloud'	12
<i>Nicotiana</i> <i>alata</i> 'Sweet Scented White' ..	10
<i>Nicotiana</i> 'Crimson King'	22
<i>Ocimum</i> 'Purple Ruffles' (Basil)	15
<i>Pelargonium</i> 'Tetra Scarlet' (Geranium)	12
<i>Petunia</i> 'Celebrity Blue'	12
<i>Rudbeckia</i> <i>fulgida</i> 'Goldsturm'	15
<i>Rudbeckia</i> <i>hirta</i> 'Gloriosa Daisy'	12
<i>Salvia</i> <i>farinacea</i> 'Victoria'	18
<i>Salvia</i> <i>splendens</i> 'Bonfire'	12
<i>Salvia</i> <i>splendens</i> 'Scarlet Pimpernel' ...	63
<i>Salvia</i> <i>splendens</i> 'Scarlet Queen'	15
<i>Senecio</i> <i>cineraria</i> 'Silver Lace' (Dusty Miller)	18
<i>Tagetes</i> 'French Vanilla' (Marigold) ...	15
<i>Tagetes</i> 'Orange Galore'	15
<i>Tagetes</i> 'Saffron'	96
<i>Tagetes</i> 'Toreador Climax'	12
<i>Tagetes</i> 'Yellow Climax'	8
<i>Tagetes</i> 'Yellow Galore'	40
<i>Thymus</i> <i>praecox</i> (Creeping Thyme) ...	40
<i>Tithonia</i> 'Goldfinger'	12
<i>Zinnia</i> 'Firecracker'	12
<i>Zinnia</i> 'Rosy Future'	12
<i>Zinnia</i> 'Yellow Zenith'	12

The Best of Both Worlds

Combining Roses and Perennials



by Judith C. McKeon

photo by Judith C. McKeon



View of the June bloom in the Morris Arboretum cottage garden where antique roses in muted shades of white, pink, and magenta-red are beautifully blended with perennial companions.

The queen of flowers typically receives mixed reviews from gardeners: cherished for her fragrance, charm, and elegance; scorned for her reputation as a troublesome beauty. A persistent Victorian memory bids unwitting gardeners to create prim quarantined beds and fill them with glorious, but alas, often defoliated hybrid teas; or, save for tenacious *Rosa multiflora*, the queen is simply exiled from Eden. A compromise may be found in the growing popularity of informal, relaxed gardening styles. Indeed a cottage garden tradition in which fragrant classic roses are mingled with choice perennials and herbs is slowly catching the imagination of American gardeners.

Situated among herbaceous companions, the queen's virtues — scented flowers, recurrent bloom, and colorful fruits — are enhanced, while her imperfections, especially leaf problems, often resulting in naked lower canes, are attractively concealed

with sumptuous drifts of perennials flowing around her like majestic skirts. In the mixed border the herbaceous layer provides a foil of color and texture against which the drama of her astonishing profusion of blooms magically unfolds. In a seasonal pageant, the queen offers her green mantle as backdrop for the tapestry of summer flowering perennials and shrubs, and her encore performance in late summer and autumn provides enchanting blossoms until hard frost.

As more home gardeners abandon high-maintenance regimes and pesticide use in favor of organic gardening techniques, our expectation of garden roses as perfect, long-stemmed American beauties is slowly yielding to a broader perception of the rose as a versatile ornamental shrub. Like other flowering shrubs, roses prove to be a gregarious, diverse group that mingle effortlessly with perennials in the mixed border and provide a substantial back-



Tangerine flowers of *Rosa* 'Westerland' are shown to advantage situated among *Crambe cordifolia*, baby's breath blossoms, purple foliage of *Cotinus coggygria* 'Velvet Cloak,' *Hemerocallis* 'Happy Returns,' and a foreground mass of *Salvia nemorosa* 'Blue Hill' in a mixed border at the Morris Arboretum.

ground against which herbaceous flowers perform.

Most gardeners just want to cultivate roses that are both beautiful and trouble-free, and they can find many wonderful, carefree shrub roses among both antique and modern types. Witness a heritage rose renaissance proclaimed in nearly every garden catalog, as well as a renewed faith in modern no-fuss shrub roses to beautify our gardens. Wading through the wealth of rose varieties available on the market can be a bit daunting. What's important is to discover some easy-care roses that work in your garden and that you can grow and enjoy without a lot of hassle. All of the recommended roses discussed here, unless otherwise noted, bloom in late May to June and again in late summer and autumn; they are completely hardy in the Delaware Valley; and they resist disease enough to hold onto most of their leaves without preventative spraying.

A cottage garden tradition in which fragrant classic roses are mingled with choice perennials and herbs is slowly catching the imagination of American gardeners.

Getting started

A simple way to get started is to select a few easy-care roses that appeal to you and incorporate them into an existing mixed border, shrub bed, herb garden, or vegetable garden. The best combinations are usually simple and pleasing comprised of individual or small groups of shrub roses surrounded by drifts of perennials. Give some thought to the rose characteristics that match the garden picture you wish to create. Most shrub roses are informal in habit and their flowers create a blowzy effect; the larger and more double the flower, the bolder the impact. The classic

rugosa 'Blanc Double de Coubert' and modern shrubs 'Carefree Beauty' and 'Carefree Wonder,' for example, produce masses of large many-petaled flowers on sizable bushes with arching to upright habits. These big bushes provide some substance positioned in the back of the border.

Classic single or five-petaled roses such as 'Dainty Bess,' 'Betty Prior' and 'Mutabilis,' furnish a delicate, airy impression carrying their flowers like butterflies on upright stems. Fragrant damask perpetual roses — 'Jacques Cartier,' 'Four Seasons,' and 'Rose de Rescht' — are compact antique shrubs ideal for small gardens. Positioned in the second or third layer of the border their lovely many-petaled flowers that exude a damask scent are appreciated. Relaxed in habit, old-fashioned 'Stanwell Perpetual' and modern shrubs 'Lavender Dream' and 'Carefree Delight' form tumbling mounds that create a cascade effect in the front to



photos by Judith C. McKeon

middle layers of the border. Prostrate groundcovers studded with clusters of charming tiny flowers including 'The Fairy,' 'Red Cascade,' and 'Scarlet Meidiland' weave a tapestry of color and texture mingled with edging perennials in the foreground. Blue-flowered perennials, catmint, salvia, and veronica, and silver foliage artemisia, lamb's ears, and lavender, make gracious companions for all roses.

Fool-proof thugs guaranteed to grow and thrive

If you have given up on roses or are timid because they die in your care, try some fool-proof types. Thug-type shrub roses, 'Blanc Double de Coubert' and 'Frau Dagmar Hartopp' are superior, iron-clad rugosa roses that bloom over a long season with little attention from the gardener. Favored by English garden designer Gertrude Jekyll, aristocratic 'Blanc Double de Coubert' is a superb specimen shrub that

integrates well with perennials and herbs. Shapely buds open to large, loosely double, pure white flowers that exude intense fragrance. Typical of rugosa hybrids, 'Blanc Double de Coubert' makes a dense, prickly shrub with wrinkled, dark green, leathery foliage. The arching to rounded shrubs attain a height of 4 to 4½ ft. by 4 ft. across.

For a knockout combination in the late May border, combine 'Blanc Double de Coubert' with the lovely blue pea flowers of false indigo (*Baptisia tinctoria*) and big single blossoms of 'Ivory Jewel' peony (*Paeonia lactiflora* 'Ivory Jewel'). An underplanting of star white aster flowers of *Kalimeris integrifolia* bloom over a long season with occasional summer flowers of 'Blanc Double de Coubert' joining in the display. In autumn the rugosa hybrid contributes characteristic late blooms and golden bronze fall foliage color and is resplendent set against soft reddish-silver plumes of 'Yaku Jima' miscanthus (*Miscanthus sinensis* 'Yaku Jima'). That great specimen shrub rose should find a home in any sunny border. For a good crop of hips in autumn substitute superb *Rosa rugosa alba*; its pale pink buds open to large single, well-scented flowers of pure white.

A compact hybrid rugosa, 'Frau Dagmar Hartopp' reaches only 3 to 3½ ft. tall and wide, covered with silver-pink single flowers almost continuously. In a small sunny space create all-season interest with a planting of 'Frau Dagmar Hartopp' faced with drifts of blue spires of Russian sage (*Perovskia atriplicifolia*) and dark blue 'Persimmon' siberian iris (*Iris sibirica* 'Persimmon'). Fall flowers and ripe red fruits look beautiful with the russet seed heads of 'Autumn Joy' stonecrop (*Sedum* 'Autumn Joy'), another tough companion. The combinations described thrive in the parking lot beds at the Morris Arboretum of the University of Pennsylvania. *Rosa rugosa alba* serves as a companion to insure fruit set. Annual late-winter pruning keeps the rugosa hybrids well-shaped and healthy. No other care is required.

Fragrant easy-care antique roses for repeat bloom

Antique roses that offer repeat bloom in late summer and autumn add a unique touch of elegance to the garden. Imported from China at the beginning of the 19th Century, the China roses are rarely out of bloom and they passed this gene along to modern roses. China roses possess a wiry habit and produce lots of small flowers that lend an air of sprightly enchantment throughout the season. They can always be counted on to give a bit of color to the autumn garden.

The most disease-resistant of the China roses, 'Mutabilis' produces pointed copper buds that open to dainty, single, apricot-orange flowers changing to pink and crimson with age. Airy bushes reach a height of about 3 to 4 ft. 'Mutabilis' always attracts attention because of its unique flowers — five-petaled, elegant blossoms that resemble butterflies. The sprightly apricot sprays of the China rose look great combined with tall sky-blue spikes of 'Souvenir d'Andre Chaudron' siberian catmint (*Nepeta sibirica* 'Souvenir d'Andre Chaudron').

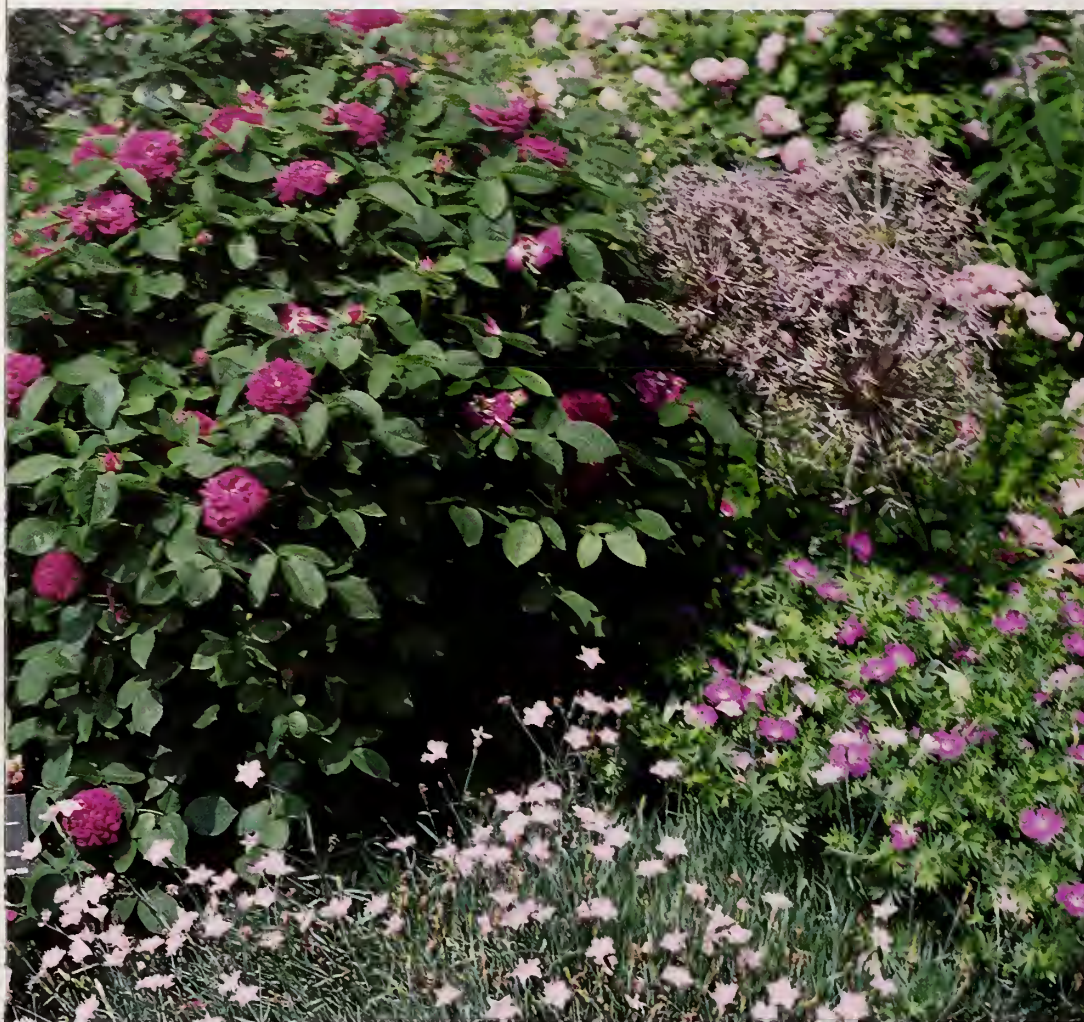
Fragrant damask perpetuals, 'Jacques Cartier,' 'Rose de Rescht,' and 'Four



Well-scented, exquisite single flowers of *Rosa rugosa alba* are generously produced in late spring and late summer followed by large cherry tomato hips.

Seasons,' are the unsung heroes of the antique rose world. These vigorous shrubs are hardy, disease-resistant and prove to be the easiest and most rewarding of the old roses to cultivate. Although not everblooming, damask perpetuals give abundant bloom in both summer and autumn. 'Jacques Cartier' makes a bushy compact shrub crowned with tight clusters of fat crimson buds that open to double, silver-pink, fragrant flowers borne on short bristly stems. Its soft pink flowers are shown to handsome effect underplanted with silver foliage perennials. 'Four Seasons' bears damask-scented, light crimson double blooms on a loose shrub with prickly stems. It always looks at home with old-fashioned herbaceous companions such as lavender, poppies, and lambs' ears.

'Rose de Rescht' is the best and most compact of the damask-perpetual group. Flowers are fuchsia-red, well-scented, with many packed petals that fade to purple as they age. It offers its bright flowers held on short bristly stems atop compact bushes 3 ft. tall and less wide, well-foliated with rough, medium green leaves. Flowers are produced freely in early summer with liberal autumn repeat. 'Rose de Rescht' is



Left: Striking fuchsia flowers of *Rosa* 'Rose de Rescht' are beautifully complemented with a skirt of perennial companions including *Allium christophii*, *Dianthus* 'Bath's Pink,' and *Geranium sanguineum* 'Alpen Glow' with *Rosa glauca* and *Rosa* 'China Doll' in the cottage garden at the Morris Arboretum. **Right:** In a no-spray exhibit at the Morris Arboretum, *Rosa* 'Carefree Wonder' is used as a colorful shrub mass faced with *Nepeta xfaassenii*. Blush-pink flowers of *Rosa* 'New Dawn' cover the wall at the back of the bed.

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displayed to advantage blended with spires of foxglove (*Digitalis purpurea*), globes of star of persia (*Allium christophii*), and faced with skirts of cranesbill (*Geranium dalmaticum*), 'Bath's Pink' cottage pinks (*Dianthus* 'Bath's Pink'), and old-fashioned blue love-in-a-mist (*Nigella damascena*). For best flower production, prune damask perpetual shrubs in early spring, deadhead spent blossoms, fertilize (Rosetone or granular fertilizer) in spring and again in early summer with a complete fertilizer, and top dress annually with organic matter. They're worth the effort.

New carefree shrub roses

Their names signify freedom from disease: 'Carefree Beauty,' 'Carefree Wonder,' and new for 1996, 'Carefree Delight.' These are some of the excellent disease-resistant shrub roses, introduced by the Conard-Pyle Company of West Grove, Pa., over the last several years, that give roses a good name. The shrubs grow energetically, repeat their bloom, and hold onto most of their foliage. At the Morris Arboretum we use a mass planting of the

'Carefree Beauty,' 'Carefree Wonder,' and new for 1996, 'Carefree Delight.' These are some of the excellent disease-resistant shrub roses, introduced by the Conard-Pyle Company of West Grove, Pa., over the last several years, that gives roses a good name.

easy-care roses in a no-spray exhibit.

'Carefree Wonder,' a 1992 All-America Rose Selection, forms an upright shrub 4 to 5 ft. high and bears large double flowers that are deep pink with creamy reverse. Fragrance is very slight, but present in the autumn blooms. The tall, upright shrubs fill a position at the back of the border with drifts of lower-growing 'Carefree Delight' in the foreground. A winner of the 1996 All-America Rose Selections award, the rounded shrubs reach about 3 ft. tall and wide, well foliated with small glossy leaves; single blooms of deep pink are carried in large clusters almost continuously. Climber 'New Dawn' also joins the exhibit covering a brick wall at the back of the bed with its

clean polished leaves and fragrant blush-pink hybrid tea-type flowers. In a classic combination, sweeps of blue-flowered catmint (*Nepeta xfaassenii*) face down the carefree mass and attractively complement the roses in hues of pink. Prune the carefree shrubs in late winter or early spring to maintain health and apply a complete fertilizer. Deadhead if you have time, no other care is required.

Easy-care groundcovers

Many tough groundcovers prove to be trouble-free roses that can be grown and enjoyed in a no-spray garden. One of the best and most enduring of the low-growing shrubs is sweetheart rose, 'The Fairy.' Generously covered in large trusses of small pink flowers, bushes mound about 2 ft. high and 3 ft. wide clothed in small polished leaves. The little shrubs respond well to annual hard pruning in early spring, which keeps them neat and tidy. At the Morris Arboretum we use 'The Fairy' in several classic mixed border scenes. Spring combinations are easy to manage, but a sublime autumn display that always attracts



photos by Judith C. McKeon

attention incorporates the pink pompon flowers of 'The Fairy' cascading over the purple fall foliage of *Origanum laevigatum* 'Herrenhausen' set against a backdrop of the fine-textured foliage of *Amsonia hubrechtii* in its golden-russet autumn color. The diminutive scene holds down the front of a densely layered garden of ornamental grasses, perennials, shrubs, and conifers.

'The Fairy' also boasts excellent ever-blooming relatives such as sweetheart rose 'Baby Faurax,' which produces trusses of small violet-purple blooms that resemble strawflowers. The low-growing bush reaches only about 12 to 15 in. tall and makes a great drift at the front of the mixed border. Treat it like a perennial mass; prune hard in early spring and shear after each bloom period. Another great creeper, 'Red Cascade,' throws its wiry canes and mounds on itself to a height of about 2 ft. with a spread of 3 ft. Its tiny bright red flowers are perfectly complemented in a wonderful layered planting with *Salvia nemorosa* 'Blue Hill,' *Coleus* 'Red Mars,' and *Artemisia* 'Huntingdon Gardens.'

Old-fashioned 'Stanwell Perpetual' forms

a tumbling, mounding groundcover well foliated with fine textured, gray-green, disease-free leaves. In June its stems are heavily studded with round buds that open to blush-pink, double flowers with sweet scent; a respectable autumn repeat bloom follows. This is a great rose to grow cascading over a rock wall where it is situated at the Morris Arboretum. A drift of 'Stanwell Perpetual' shrubs are also used to cover a slope in the herb garden. For stunning foliage contrast the shrubs are blended with 'Crimson Pygmy' barberry (*Berberis* 'Crimson Pygmy') and faced with catmint (*Nepeta x faassenii*) and 'Huntington Gardens' artemisia (*Artemisia* 'Huntington Gardens').

A warning about hybrid tea roses

Although large-flowered hybrid tea roses are the most readily available roses, they are rarely the best choice for the mixed border. Their stiff upright habit makes them difficult to blend with informal perennials and shrubs and they are high maintenance and prone to diseases. If you must have them, select only the most disease-resistant (see list) and be prepared to treat them several times each year with fungicides, beginning with the first leaves in spring.

Exquisite 'Dainty Bess,' whose old-fashioned single hybrid tea flowers associate splendidly with perennial companions, is one notable exception. Fragrant pink flowers are large, comprised of only five petals, and filled with maroon stamens; upright canes reach 4 to 5 ft. This rose is basically always in bloom except when the deer feed on the buds. At the Morris Arboretum, we grow this beauty as the tallest element in a densely layered combination of repeat-blooming classic roses including 'Gruss an Aachen' and 'Souvenir de la Malmaison' mingled with star of persia (*Allium christophii*) in late spring, pure white 'Sonata' cosmos (*Cosmos bipinnatus* 'Sonata') through summer and deep pink petite flowers of 'Margarete' japanese anemone (*Anemone x hybrida* 'Margarete') in fall. The whole is underplanted with skirts of 'Bath's Pink' cottage pinks (*Dianthus* 'Bath's Pink') and 'Alpen Glow' cranesbill (*Geranium sanguineum* 'Alpen Glow') spilling out over a raised Belgian block-edged bed. 'Dainty Bess' requires several fungicidal treatments beginning in early spring to maintain foliage, which provides the energy for repeat bloom.

To avoid the hassle of hybrid tea rose care, try some of the carefree shrubs recommended here. All of the antique and modern roses discussed are four-star shrub roses that have received top reviews from gardeners around the country. With a great selection of both old and new roses, the

queen of flowers has never been more accessible to all gardeners who wish to grow and enjoy our national flower with success in the home garden.

Some Disease-resistant Hybrid Tea Roses

- 'Love' — red with white reverse
- 'Chrysler Imperial' — magenta-red/
extremely fragrant
- 'Gold Medal' — golden yellow
- 'Marijke Koopman' — deep pink/
light fragrance
- 'Fragrant Cloud' — red-orange/
extremely fragrant
- 'Rio Samba' — yellow-orange bi-
color/slight fragrance

Sources

Local:

Robertson of Wyndmoor
1301 East Mermaid Lane
Wyndmoor, PA 19038
(215) 836-1307

Waterloo Gardens
136 Lancaster Ave.
Devon, PA 19333
(610) 293-0800

and

200 N. Whitford Rd.
Exton, PA 19341
(610) 368-0800

Fort Washington Garden Mart
488 Bethlehem Pike
Ft. Washington, PA 19034
(215) 646-3336

Mail Order

Pickering Nurseries, Inc.
670 Kingston Road
Pickering, Ontario
Canada L1V1A6
(905) 839-2111

Hortico, Inc.
723 Robson Road
R.R. 1
Waterdown, Ontario
Canada L0R2H1
(905) 689-6984

Judith C. McKeon is chief horticulturist and rosarian at the Morris Arboretum of the University of Pennsylvania. She is the author of *The Encyclopedia of Roses: An Organic Guide to Growing and Enjoying America's Favorite Flower* published by Rodale Press, Emmaus, PA; 1995. Judy is writing a new book in which she focuses on design concepts for gardening with roses.

HEDGES FOR EDGES

Hedges create special areas in the landscape that change spaces with different plantings and features

by Nancy J. Ondra

Since our landscapes are basically an extension of our indoor living space, arranging them as we would our indoor rooms is a comfortable and sensible way to approach garden design. It's a blend of art and science that J. Liddon Pennock, Jr., owner of Meadowbrook Farm in Meadowbrook, Pa., has been fine-tuning in his gardens for many years. And it's a concept that applies equally well to any size property, from a tiny town garden to a large country estate.

Creating rooms outdoors isn't quite as clear-cut as it is indoors. Inside, we have floors, ceilings, and walls to mark the boundaries of each space. Outside, we still have a ceiling (the sky, or a canopy of trees) and a floor (in the form of bare soil, lawn, or paving), but the walls are often lacking.

Here's where the fun comes in since our opportunities for creating walls are limited only by our imagination. Want a classical Colonial look? Choose a wooden picket fence. A rustic New England look? Try a dry stone wall. A traditional formal feeling? Try a tall, closely clipped evergreen hedge. Create boundaries to suit your space, growing conditions, and overall design goals.

Once you've established the walls of each room, don't stop there. Think about your indoor rooms again, how the space in each room further divides to separate different functions. In the family room, for example, a couch or bookcase divides the television area from the work area. How do you create the same effect in the garden? Go for smaller fences, or some kind of edging strips. But for the most beauty and design flexibility, take a tip from Liddon Pennock, and try using clipped or naturally compact flowering or foliage plants to create your own low dividers.

Low hedges for see-over dividers

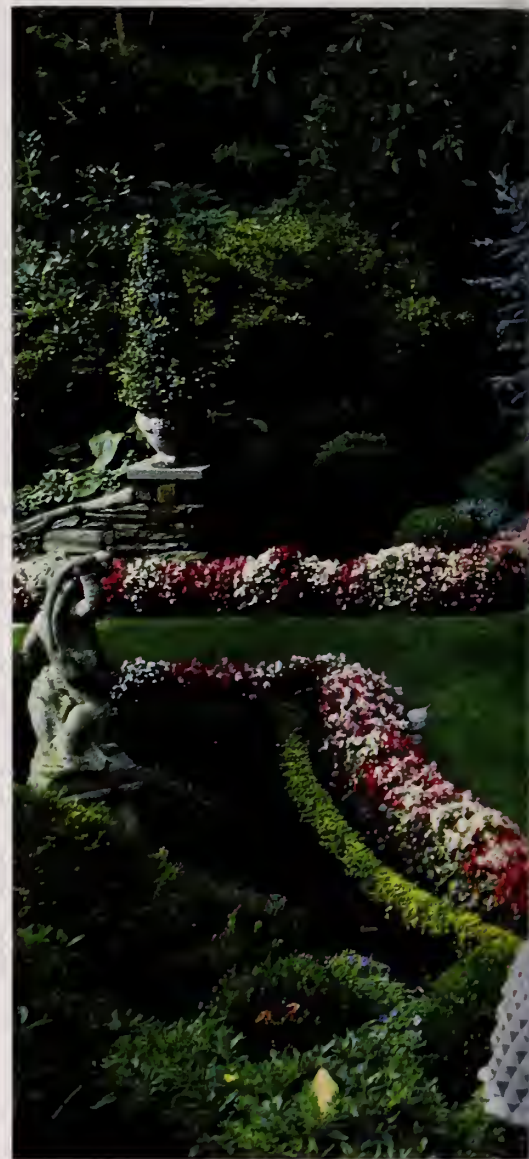
Compact hedges are excellent when you want to create some kind of barrier between plantings, or between paved and planted areas, without blocking your view on either side. Low hedges mark the line between lawn and flower beds, for example. They're also traditional favorites for creating an edge between paths and herb plantings. You might use them to line a paved walkway to your front door, or to soften the edge between a rose garden and the space around it.

Choosing plants for compact hedges

When selecting plants for low hedges, you have several choices. First, do you want a geometric, clipped look, or is a leafier, casual look more in keeping with your needs? Clipped hedges obviously take more work, but they add an elegant touch that's ideal for more formal settings.

Do you want an evergreen hedge for year-round color, a deciduous hedge for seasonal interest, a perennial hedge for summer and fall flowers and foliage, or an annual hedge for a temporary effect? No matter which plants you choose, you'll get fast results. Annuals will take just a few weeks; perennials can spread out within a season. Shrubby plants will give an immediate effect if you space them closely; wider spacings may take a year or two to fill in.

In the gardens at Meadowbrook, Liddon Pennock has experimented with dozens of different plants for all of these kinds of compact hedges, in a variety of settings. Some of his current favorites follow. Try some of these for a start, then experiment with other plants that catch your eye to find your own favorites.



photos by John C. Gouker

Plants for low, clipped hedges

Bushy, well-branched plants tend to be most tolerant of the repeated shearing needed to keep compact, formal hedges looking sharp. Some traditional favorites for tall hedges, including yews (*Taxus* spp.), will stay much smaller if you start clipping them when they are young. At Meadowbrook, a yew hedge maintained at a size about 18 in. sq. is used as a divider between a rose garden and a low groundcover strip along a terrace. This low hedge provides an evergreen feature to separate the terrace from the garden, and it also helps to hide the bare lower stems of the hybrid tea roses.

Among other evergreens, boxwoods (*Buxus* spp.) are also ideal for edging terraces and flower gardens. The frosty blue foliage of dwarf Sawara cypress (*Chamaecyparis pisifera* 'Nana') is lovely as a skirt of white, pink, peach, or yellow roses, while glossy green wall germander (*Teucrium chamaedrys*) has long been a favorite for edging green- and silver-leaved

continued

the green scene / march 1996



Above: In mixed or solid colors, wax begonias (*Begonia xsemperfloresculturum*) make an easy but eye-catching edging for garden beds. These and other annuals are ideal for areas where you want a fast-growing, flowering hedge.

At right: Dwarf Sawara cypress (*Chamaecyparis pisifera* 'Nana') offers blue-tinted foliage that blends well with many other colors. It's particularly good as an edging in front of colored roses and other sun-loving flowers.



HEDGES FOR EDGES

photos by John C. Gouker



Low hedges can be great garden accents in their own right, especially when they're as colorful as this variegated Japanese euonymus (*Euonymus japonicus* 'Aureo-variegatus'). It makes a perfect divider between the grass path and the subtle plantings on either side, while leading your eye to the beautiful garden feature in the distance.

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A boundary of 'Rose Glow' barberry (*Berberis thunbergii* 'Rose Glow') separates the lush lawn from the formal seating area beyond. Low hedges of multi-colored parrot leaf (*Alternanthera ficoidea* 'Tricolor') define spaces within the seating area without blocking the view.

herbs. Little-leaved Japanese euonymus (*Euonymus japonica* 'Microphylla') produces oval leaves in a rich, deep green that complements many flowers. To liven up an otherwise dull planting, you might instead choose a variegated cultivar, such as the yellow-and-green-leaved *E. japonicus* 'Aureo-variegatus.'

Of course, you aren't limited to evergreen plants for low, clipped hedges; deciduous shrubs have a lot to offer as well. Regular shearing usually removes all the flower buds, so you usually won't see many flowers or much fruit on clipped hedges. But you do get to enjoy the foliage through much of the year, as well as the attractive stems during the winter. Choosing shrubs that have good fall color will add an extra dimension of interest in autumn. At Meadowbrook, a one-ft. square hedge of 'Rose Glow' Japanese barberry (*Berberis thunbergii* 'Rose Glow') provides pinkish new foliage in spring, deep reddish leaves in summer, showy scarlet fall color, and a tangle of spiny stems in winter. A hedge of lace shrub (*Stephanandra incisa*) clipped to only four inches square turns from a strip of green in summer to a ribbon of bright

yellow or orange in fall.

If you'd like to experiment with the look of a clipped barrier without committing to a more permanent shrub planting, try an annual hedge. A sheared hedge of multi-colored parrot leaf (*Alternanthera ficoidea* 'Versicolor') is a yearly feature in the gardens at Meadowbrook. This naturally upright but compact plant produces green leaves that are mottled and shaded with red, yellow, and brown, creating an interesting tapestry effect.

Plants for casual, compact hedges

Of course, not all of us want to spend extra time and effort shearing small hedges. If low maintenance is the way to go in your garden, consider creating your low hedges with plants that will stay compact without regular clipping. You'll still have plenty of plants to choose from.

A wide variety of dwarf conifers can make an attractive, evergreen edging. Remember, while these plants are slow-growing, they can grow several feet or more over time; you may need to prune selectively to maintain the desired size, or replace the hedge every 6 to 10 years when

continued

CREATE YOUR OWN COMPACT HEDGES

As with any planting, success with growing low hedges starts with choosing the right plants for your site's growing conditions. Once you've identified the plants that are naturally well suited to your site, you can start to consider factors such as permanence and seasonal interest. Pick the plants that best fit your needs, prepare the soil for planting, set your plants out at the proper

spacing, and get ready to enjoy the results.

To help you get started with your plant selection, the chart below outlines the needs and suggested spacings for each of the specific plants mentioned in this article, along with special care tips.

Name	Best Site	Special Features	Spacing	Care Tips
Multi-colored parrot leaf (<i>Alternanthera ficoidea</i> 'Tricolor')	Sun to light shade; average to moist soil.	Green leaves marked with brown, yellow, and red. Annual.	4 inches	Shear every 2 to 3 weeks during the growing season.
Japanese painted fern (<i>Anthyrium goeringianum</i> 'Pictum')	Partial shade; average to moist soil.	Gray-green fronds; maroon stems. Deciduous fern.	3 to 6 inches	No trimming needed.
Wax begonia (<i>Begonia</i> <i>semperflorens-cultorum</i> hybrids)	Sun to partial shade; average soil.	Red, pink, or white flowers; waxy green or red-brown leaves. Annual.	3 to 4 inches	Pinch stem tips 2 or 3 times during the growing season.
'Rose Glow' japanese barberry (<i>Berberis thunbergii</i> 'Rose Glow')	Sun to light shade; average to dry soil.	Reddish foliage; red fall color; thorny stems. Deciduous shrub.	4 to 5 inches	Shear 2 to 3 times during the growing season.
Boxwoods (<i>Buxus</i> spp.)	Sun to light shade; average soil.	Green or variegated foliage. Evergreen shrub.	8 to 10 inches	Let grow naturally or shear as desired.
Yellow dwarf hinoki cypress (<i>Chamaecyparis obtusa</i> 'Nana Aurea')	Sun; average soil.	Green foliage tipped with yellow. Evergreen shrub.	10 to 12 inches	Trim as needed to keep plants the desired height.
Dwarf Sawara cypress (<i>Chamaecyparis pisifera</i> 'Nana')	Sun; average soil.	Dark green foliage frosted with blue. Evergreen shrub.	8 inches	Shear 2 or 3 times during the growing season.
Variegated japanese euonymus (<i>Euonymus japonicus</i> 'Aureo- variegatus')	Sun to shade; average soil.	Oval, green leaves with yellow centers. Evergreen shrub.	4 to 6 inches	Clip individual stem tips as needed (don't shear).
Little-leaved japanese euonymus (<i>Euonymus japonicus</i> 'Microphylla')	Sun to shade; average soil.	Small, oval, dark green leaves. Evergreen shrub.	4 to 6 inches	Shear 2 or 3 times during the growing season.
Polka-dot plant (<i>Hypoestes</i> <i>phyllostachya</i>)	Sun to partial shade; average to moist soil.	Green leaves spotted with pink or white. Annual.	4 inches apart	Pinch stem tips as needed to keep compact.
Common impatiens (<i>Impatiens</i> <i>wallerana</i>)	Partial shade; moist soil.	Red, orange, pink, lavender, or white flowers; green or red-brown foliage. Annual.	4 inches	Pinch stem tips as needed to keep compact.
New guinea impatiens (<i>Impatiens</i> New guinea hybrids)	Sun to light shade; average to moist soil.	Red, orange, pink, purple, or white flowers; green, maroon, or variegated foliage. Annual.	4 to 6 inches	Usually stays bushy without pruning; pinch stem tips if needed.
Japanese pachysandra (<i>Pachysandra terminalis</i>)	Partial to full shade; average to moist soil.	Green or variegated foliage; white flowers. Evergreen groundcover.	3 inches	Trim outer plants as needed to keep plants from creeping out of their allotted strip.
Dusty miller (<i>Senecio cineraria</i>)	Sun to light shade; average to dry soil.	Lobed or finely cut, silvery foliage. Annual.	4 inches	Pinch off any flower stems that appear before they bloom.
Lace shrub (<i>Stephanandra incisa</i>)	Sun to light shade; average soil.	Lacy green leaves that turn yellow or orange in fall. Deciduous shrub.	4 inches	Shear every 2 to 3 weeks or as needed.
Yews (<i>Taxus</i> spp.)	Sun to partial shade; average soil.	Dark green, needle-like leaves. Evergreen shrub.	10 to 12 inches	Shear once or twice during the growing season.
Wall germander (<i>Teucrium</i> <i>chamadrys</i>)	Sun to partial shade; average soil.	Small, evergreen leaves. Evergreen subshrub.	3 inches	Shear plants 2 or 3 times during the growing season.



For year-round color, it's hard to beat the "evergold" foliage of yellow dwarf hinoki cypress (*Chamaecyparis obtusa* 'Nana Aurea'). Dwarf conifers grow slowly but can eventually reach 2 feet or more in height, so prune to maintain them as a low hedge, or replace them when they get too tall.

the plants get too big. For extra color, choose a cultivar with bluish or yellow-marked foliage, such as the gold-tipped, green foliage of yellow dwarf hinoki cypress (*Chamaecyparis obtusa* 'Nana Aurea'). Another evergreen option is a strip of japanese pachysandra (*Pachysandra terminalis*), with whorls of medium to dark green leaves topped with brushy spikes of small white flowers in early summer.

Deciduous shrubs can be a problem for low hedges, since even dwarf cultivars tend to get rather large without regular pruning. But if you're looking for multi-seasonal interest, try a hedge of perennials instead. Many kinds of mound-forming or upright perennials will fit the bill; look for the colors and heights that best suit the area where you plan to use them. Don't forget foliage perennials, such as ferns and hostas. At Meadowbrook, a planting of japanese painted fern (*Athyrium goeringianum* 'Pictum'), with its gray-green, reddish-stemmed fronds, makes a striking divider between a red brick path and a gray stone wall.

Want to change the look of your garden each year without the hassle of moving established hedge plants? Use low-growing flowering and foliage annuals to edge your beds. Just about any compact, bushy annual can make a colorful edging, and many new compact cultivars appear on the market each year. For foliage interest, try the lacy, silvery leaves of dusty miller (*Senecio cineraria*), or the pink- or white-spotted leaves of polka-dot plant (*Hypoestes phyllostachya*). In the gardens at Meadowbrook,



A hedge of lacy japanese painted fern (*Athyrium goeringianum* 'Pictum') beautifully softens the base of a low stone wall. Bushy annuals, such as coleus, are another option if you prefer brighter colors.

flowering favorites include impatiens (*Impatiens wallerana* and the New Guinea hybrids) and wax begonias (*Begonia semperflorens-cultorum* hybrids). Choose single-color cultivars for a uniform look, or pick mixed colors to add sparkle to an otherwise subdued site. You might even try a hedge of two annuals with similar colors and growth habits, such as pink polka-dot plant with pink-flowered impatiens.

Once you begin exploring the possibilities of plants for low hedges, it's easy to get carried away. Fortunately, you can start with small plants, so the expense doesn't have to be prohibitive. Plus, you get to see

the effect right away, without waiting for the several years that most plantings need. So the next time you start thinking about designing a new garden or livening up a tired landscape, include a few low hedges in your plan; you'll get a great effect for a minimum investment of time and money.

Nancy J. Ondra worked as a senior associate editor of Garden Books at Rodale Press before starting Pendragon Perennials, a small nursery specializing in unusual hardy and tender perennials, in Emmaus, Pa. She is co-author of *Rodale's Successful Organic Gardening: Annuals and Bulbs* (Rodale Press, 1995).

The Kennett Square Tree Giveaway

 by R. William Thomas



I grew up in a small town with tree-lined streets. The tall, arching forms were magnificent in every season. Spring was chartreuse with new foliage. Summer was a deep green relief from the heavy heat. Autumn was a bright mix of yellows and oranges, and winter painted the trunks and branches white. An added bonus was riding my bike through clouds of "helicopters" when the maples were dropping their seeds.

When I moved to Kennett Square, I found century-old trees shading some of the streets. Unfortunately, there were also streets without trees, and not many saplings were being planted. The Borough had no tree program and no public funds to spend. Would the next generation grow up without trees?

When I became chair of the Kennett Square Beautification Committee in 1979, the group's efforts centered on seasonal flower planting and an annual plant sale. I was concerned that planting annuals left nothing permanent in Kennett. If the Committee were disbanded, little would remain of its work. Fortunately, because of the plant sale, the Committee's bank account kept growing without increasing demands on ways to spend it.

Giving away street trees provided a solution to these concerns. In the spring of 1980, we distributed announcements about the tree giveaway. Newspapers ran press releases, the local cable TV station included it on its community bulletin board, and posters with tear-off phone numbers were posted in grocery stores and the library. Nineteen people requested trees during 1980.

We organized the project so that one person could manage it. After the requests came in, each site was checked to make sure there was room for a street tree. The "rule" was that the tree had to be "effective for the street," but actual placement was flexible. Since this was a private effort, rules were few and loose.

We selected species and cultivars based on the site's environment: for example, amount of light and moisture, soil compaction, use of deicing salts and space available. We considered ground and air space, e.g. was there room between the sidewalk and the street, or at least between the house and the street; and were there overhead wires? We chose species available for purchase, and the homeowner had to ap-

Berry-laden 'Winter King' hawthorn (*Crataegus viridis* 'Winter King') is colorful from October through January. Its low spreading crown fits under wires, but can cause a problem for pedestrians.

photo by R. William Thomas



and left near the planting site. The trees ranged from 1¼" to 1¾" caliper, were balled and burlapped, and generally rolled very easily. A tree cart might have been easier, but it was one more thing to borrow.

Tree selection was the fun part. I could use favorite trees and then watch them grow. I tried to have all the trees on one block match, and then change species in the next block. For example, the 700 block of South Washington Street received red oaks; the 800 block, sugar maples. This approach helps unify individual blocks and reduces the danger of monoculture. More than 40 species were planted throughout the program.

I used the opportunity to try a wide variety of trees, limited only by what we could buy locally at the required size. Wholesale cost ranged from \$30 to \$80 per tree. A few homeowners had strong opinions about what they wanted, and I usually tried to match their requests. Thus, more callery pears were used than I had planned. But there were just as many who wanted something unusual. One homeowner now has five hardy rubber trees and another who likes oaks has two beautiful bur oaks.

Some of the trees used are not thought of as street trees. Paperbark maple, yellowwood, and Carolina silverbell went on quiet streets where the soil appeared to be well-drained and moderately fertile. Eastern white pine was used in a planting at the high school. The grounds manager did not want leaves blowing onto the tennis courts, but he agreed to the pines.

The drawbacks to the program were relatively minor. Because the homeowner did the planting, the trees did not go exactly where planned. There are no straight lines of trees. Some prime sites are still treeless because the owner did not request a tree.

The system, however, is an easy one that can be copied by other small communities. It's low-cost and should be equally feasible with public or private funds, and may even work if the homeowner is charged for the trees.

The trees have already made a difference in Kennett Square. Some of the first trees are now nearing 30 ft. in height. I enjoy riding my bike under trees that I distributed. One can only assume that if we had not given them away, they wouldn't have been planted. We're 400 trees richer!



Bill Thomas is Education Division manager at Longwood Gardens and was chair of the Kennett Square Beautification Committee from 1979-1994. His book, *Trees and Shrubs*, was published by Hearst Books, N.Y., in 1992.



Top: Pin oaks (*Quercus palustris*) have horizontal branches, transplant easily and hold leaves in winter. This tree was planted nine years ago on Oak Avenue. **Bottom:** Chinese scholar trees (*Sophora japonica*) have reached a significant size in only nine years.

prove the recommendation. Generally, no more than two trees were given to a homeowner in one distribution, but more could be requested in the future. Some corner lots took as many as seven trees.

Once these steps were completed, the trees were ordered. The homeowners were given one or two days' notice before the distribution. The trees were picked up at the nursery and delivered to the site. An instruction sheet was left with each tree. The sheet included planting and care instructions written in a simple, easy-to-read style. The sheet also said the Kennett Square Beautification Committee paid for the trees and noted that no government funds were used; listed the next plant sale date; whom to call if there were problems,

questions or requests for more trees; and how to make a donation (only two people ever did).

During the week following the distribution, I drove around town to make sure all trees were planted in their proper places. I called and nagged if the trees were still above ground. In the 14 years of the program, only two people ever cheated by planting the trees in their backyards.

The system proved to be simple enough to continue as a one-person operation. An answering machine took the initial request (name, address, and phone number). The site check and tree recommendation followed. The trees were delivered using a borrowed pick-up truck, from which the trees were rolled off the back on a plank

Trees Planted in Kennett Square

Acer buergerianum — trident maple
Acer campestre — hedge maple
Acer griseum — paperbark maple
Acer palmatum — japanese maple
Acer palmatum 'Bloodgood' — japanese maple
Acer platanoides 'Crimson King' — norway maple
Acer rubrum — red maple
Acer rubrum 'Red Sunset' — maple
Acer saccharum — sugar maple
Acer saccharum 'Green Mountain' — sugar maple
Carpinus betulus 'Fastigiata' — european hornbeam
Cercidiphyllum japonicum — katsura tree
Cladrastis lutea — yellowwood
Cornus kousa — kousa dogwood
Crataegus viridis 'Winter King' — hawthorn
Eucommia ulmoides — hardy rubber tree
Evodia hupehensis — Chinese evodia
Fraxinus americana 'Autumn Applause' — white ash
Fraxinus americana 'Autumn Purple' — white ash
Fraxinus pennsylvanica 'Marshall Seedless' — green ash
Gleditsia triacanthos 'Shademaster' — honey locust
Gleditsia triacanthos 'Skyline' — honey locust
Gymnocladus dioica — kentucky coffee tree
Halesia tetraptera — carolina silverbell
Laburnum × watereri — golden chaintree
Liquidambar styraciflua — sweet gum
Malus 'Centurion' — crabapple
Malus 'Donald Wyman' — crabapple
Malus 'Harvest Gold'
Ostrya virginiana — hop hornbeam
Phellodendron amurense — amur corktree
Pinus strobus — eastern white pine
Platanus × acerifolia — london planetree
Prunus cerasifera 'Thundercloud' — plum
Prunus sargentii — sargent cherry
Prunus sargentii 'Columnaris' — columnar sargent cherry
Prunus serrulata 'Kwanzan' — cherry
Prunus × incam 'Okame' — cherry
Pyrus calleryana 'Redspire' — callery pear
Quercus macrocarpa — bur oak
Quercus palustris — pin oak
Quercus rubra — red oak
Sophora japonica — chinese scholar tree
Sorbus alnifolia — korean mountainash
Sorbus aucuparia — european mountainash
Syringa reticulata — japanese tree lilac
Tilia cordata — littleleaf linden
Tilia cordata 'Greenspire' — linden
Zelkova serrata 'Green Vase' — zelkova
Zelkova serrata 'Village Green' — zelkova



Powelton Village Tree Tenders, one of 46 trained groups caring for trees throughout Philadelphia, plant a series of trees at the Mantua Public Library in West Philadelphia. Tree Tender training is available to Philadelphia residents through the Pennsylvania Horticultural Society.

Trees Grow in the City

by Susan Phillips

Philadelphia Green, the neighborhood and landscape greening program of the Pennsylvania Horticultural Society, has been planting trees in low to moderate income neighborhoods throughout the city of Philadelphia for almost 20 years. Although Philadelphia Green has planted thousands of trees in these target neighborhoods, we have only recently begun to address the problem of urban reforestation.

National surveys of urban tree populations have determined that for each new tree planted seven trees die. These statistics are very real to Philadelphians who have watched their tree population decline along with the city's tree planting budget.

Residents have mobilized in all parts of the city to plant and care for the trees in their neighborhoods, as demonstrated by the 46 community groups that have received training through the Pennsylvania Horticultural Society's Tree Tender Program.

Tree planting in the city can be a complicated process. One of Tree Tenders' missions is to help individuals and organizations, in the city of Philadelphia, navigate the maze of city street tree planting regulations and help to insure that the right tree is planted in the right place. To learn more about the Tree Tender Program or register for the next class, call Philadelphia Green at (215) 625-8280 or write the Tree Tender


Program, Pennsylvania Horticultural Society, 325 Walnut Street, Philadelphia, PA 19106.

For those of you who are determined to take the shovel into your own hands, be sure you 'know the rules' before you begin. Most cities, towns and boroughs have Tree Commissions and Ordinances that govern tree planting in their communities. Be sure to investigate the regulations as well as any utility involvement before you start digging. Hitting a water or electric line or planting in violation of the fire code may cause you and your tree a lot of unnecessary hardship.

In Philadelphia, the Fairmount Park Commission oversees all street trees, and has rules and regulations that govern all sidewalk planting. Whether you plant the tree yourself, or hire a contractor, a planting permit must be issued for your site. To start the process, contact the Fairmount Park Commission, Memorial Hall, West Park, P.O. Box 21601, Philadelphia, PA 19131 or phone: (215) 685-0014 for more information.

Susan Phillips, a program manager for the Pennsylvania Horticultural Society, joined the Society in 1989 as Philadelphia Green's Tree Program Coordinator. She is also the past president of the Pennsylvania Urban & Community Forestry Council and continues to serve on its Board of directors.

Unravelling the Mystery of Anthracnose Diseases of Shade Trees

 by Lisa Blum and Herbert Hickmott

Landscapers, arborists, homeowners, and horticulturists have used the term "anthracnose" to describe diseases of many plants caused by some fungi. In the field, however, this anthracnose condition means different things to different people, resulting in control recommendations that range from doing nothing to using toxic chemicals. I've outlined here information to clarify some of the prominent plant hosts in the Delaware Valley, to describe the most common and characteristic symptoms of anthracnose, and to provide a guide for realistic and safe controls of this widespread and seasonal problem.

The word "anthracnose" comes from the Greek "anthrax" meaning a carbuncle or ulcer, and this term actually refers to the ulcer-like condition of plant tissue. Usually, even at a microscopic level, this disease causes some plant tissue to have a raised border around a more or less depressed center. Tomatoes and beans sitting in plastic bags on your countertop exhibit this classic sunken anthracnose symptom. Shade trees most commonly affected do not display such symptoms, but instead have distinctive limited areas of dead tissue on twigs and leaves (Figure 1).

The most common tree hosts in our area include: white ash (*Fraxinus americana*), flowering dogwood (*Cornus florida*), elm (*Ulmus* spp.), hickory (*Carya* spp.), linden (*Tilia* spp.), maple (*Acer* spp.), white oak mostly (*Quercus alba*), but also can be on scarlet, red, pin, and black oak (*Q. coccinea*, *Q. rubra*, *Q. palustris*, *Q. velutina*), and american sycamore (*Platanus occidentalis*). As you can see from this list, many of our most used street and landscape trees are affected.

How to identify anthracnose

All anthracnose diseases are caused by fungi. Some of these fungi are referred to in the literature by their genus names *Apiognomonia*, *Gnomonia*, *Discula* or *Gleosporium*.

Cool temperatures (50-55°F average daily temperature) and wet conditions in the spring favor anthracnose diseases. During that time, most of the tree hosts are susceptible because their leaf buds are breaking, shoots are elongating, and leaves are expanding. The fungi thrive in these tender, succulent tissues and can cause noticeable problems, especially in the lower and inner leaves and branches of the tree canopy.

The type of symptom depends upon the type of tree host and the stage of tree development during which the fungi are especially aggressive. During the winter dead twigs or twigs with cankers may be seen where fungi have already killed shoots or buds. These cankers are usually oval in shape, about 2-3 inches long, with a swollen margin and a sunken dark middle. Cankers that are large or appear on the main branches or near the base of trees are **not** anthracnose cankers.

Early in the season, infected buds do not break and the anthracnose resembles frost injury. The buds turn brown or black and can wither. During shoot elongation, new leaves wilt rapidly and die. This symptom sometimes can be confused with verticillium wilt, a fungal disease of the vascular system of maples and elms. Verticillium wilt, however, usually starts on one side of a tree and is most prominent in midsummer. A cross section of an infected stem would also reveal brown or green streaks in the

sapwood. Anthracnose is an early season problem with little or no sapwood discoloration.

Later in the spring, after leaves have matured, dead spots, blotches, and necrotic areas occur *along leaf veins*. (Figure 2) This type of leaf pattern is unique to anthracnose diseases. Sometimes other leaf diseases such as powdery mildew on sycamore and oak show browning and leaf distortion, but these symptoms occur later in the summer, not early in the growing season. Oak leaf blister, a fungal disease that occurs at the same time as anthracnose, causes blistering and curling of oak foliage; anthracnose infected tissue is usually dry and flat on the leaf. If the infection occurs early in the growing season and progresses rapidly, defoliation also can occur. Usually severe defoliation of these prominent trees spurs panicked clients to phone tree-care professionals. The good news is that most of the trees usually refoliate by midsummer.

Some of the tree hosts, especially white oak and sycamore, are infected yearly with anthracnose, which actually causes the excessive and angular branching that we associate with the "normal" form of these trees. Obviously since some of these trees are long-lived, anthracnose fungi do not seem to cause chronic effects unless severe outbreaks occur for many years in a row.

How to manage anthracnose

Management of anthracnose diseases depends upon a thorough understanding of the cycle of disease. The fungus survives during the winter in infected buds, in dead twigs and cankers on branches, and in dead leaves and twigs on the ground. During warmer, wet weather in early spring, reproductive spores of the fungus are released from fruiting structures in all of these tissues and are blown onto new buds and shoots causing symptoms, and then onto nearby emerging leaves causing either the dead areas along veins and on margins, or totally necrotic leaves that shrivel and fall to the ground.

Although anthracnose diseases are aesthetically displeasing (Figure 3), they are seldom severe enough to warrant extreme control measures. If, however, severe defoliation continues to occur, the trees lose their vigor and their ability to fight off environmental stress or other insect and organism attacks. An exception to this generally low level of danger has been dogwood anthracnose, also called dogwood

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Figure 1. Anthracnose infected leaves of norway maple. Note symptoms along margins.



Figure 2. Anthracnose of dogwood.



Figure 3. Defoliation of sycamore caused by anthracnose, aggravated by construction damage.



Figure 4. Anthracnose of sycamore foliage.



Figure 5. Dieback of flowering dogwood caused by dogwood anthracnose.



Figure 6. Anthracnose dieback in ash.

lower branch dieback, which has seriously threatened that tree's health during the past decade. It's important, therefore, to apply balanced fertilizers, water during drought periods such as this past summer, and to protect the roots from soil compaction and drought by mulching 2-3 inches within the tree's dripline. These steps help bolster the tree's defenses against future infections.

Another important management practice would be to remove those areas of the tree that harbor fungal tissue or spores: dead branches or cankered branches and twigs as well as foliage that has fallen to the ground. These sanitary controls should always be part of routine horticultural care not only for anthracnose problems, but for all pests and diseases.

We can avoid anthracnose problems by choosing more resistant tree species. London plane has been extensively planted to replace american sycamore for this reason (Figure 4). Red and black oak species are more resistant to anthracnose than white oak trees; green ash trees are more resistant than white ash species; and Kousa dogwood and hybrids of Kousa and american dogwood are more resistant than the unhybridized american dogwood.

If street trees or landscapes are being planned around resistance to this disease, be warned: while anthracnose is usually not a fatal disease, other more dangerous problems may exist to which these resistant trees are susceptible. London plane trees are severely susceptible to cankerstain, which is a lethal fungal disease caused by a relative of the dutch elm disease. The Fairmount Park Commission, in fact, battles cankerstain every day throughout Philadelphia, with the only management

choice being the costly removal of these huge specimens. Red and black oaks are now being threatened with a bacterial scorch disease that we know little about and which has no effective cure except tree removal. Sometimes accepting a little imperfection in a tree species might be worthwhile to protect the trees from worse infections.

Finally, the use of fungicides can be helpful in supporting all of these other management practices. Most of the time, spraying pesticides is unnecessary. The costs to apply these chemicals, and the environmental hazards associated with spraying large trees (drift, ineffective coverage) are usually greater than anthracnose's mostly aesthetic losses.

There are exceptions to this rule. If the environmental conditions are favorable to the fungus for many years in a row, and severe anthracnose symptoms repeatedly occur, pesticides may be warranted (Figure 5). If the tree is of specimen value or if it has been weakened by other factors such as insect infestation or environmental stress, fungicides can be justified. In these cases, begin spraying early in the season at bud-break and repeat weekly or biweekly depending on the weather and the severity of the infection. Unfortunately, in many cases by the time we detect the anthracnose disease it's too late for chemical sprays to be effective because the fungal spores have already been produced and have spread to more host tissue. This spray schedule should be continued until late spring and summer when the weather becomes warmer and drier.

Check with your local university cooperative extension office for the specific

chemicals legally allowed for use in your area against anthracnose. Chlorothalonil, mancozeb, benzimidazole, or mancozeb + thiophanate methyl are some of the more commonly registered fungicides applied to the surface of plants. A few newer systemic fungicides such as benzimidazole carbamate can be injected into the vascular system of trees. Some of these chemicals, however, are to be applied **only** by licensed professional applicators.

The incidence of anthracnose diseases during the past few years seems to have increased. We've had some extreme winters and drought-ridden summers that put added stress on trees. This past spring was especially cool and wet, which has allowed lots of anthracnose fungi to grow and reproduce (Figure 6). The combination of numerous aggressive fungi together with weakened trees adds up to more disease, which while fascinating to a pathologist, frightens the treeowner or caretaker. The sensible approach to this disease is to recognize it, follow established guidelines for care, and know that next year the anthracnose may be a minimal problem.

Lisa Blum teaches applied plant pathology and tree pathology at Temple University, Ambler, PA. Her firm, Ginkgo Diagnostics, diagnoses pests and diseases, and consults on plant and tree problems in the Delaware Valley.

Herb Hickmott is a certified arborist and Pennsylvania accredited nurseryman for Keystone Tree Experts in Fort Washington. Keystone specializes in the plant health care approach to tree and shrub maintenance.

SLIDES, *Which*

 by Richard L. Bitner

photo by Marilyn Daly



photo by Richard L. Bitner

Fuji

Do you use slides for lectures, publications or as record of gardens — your own and others? The author asks a group of horticulturists which film they prefer using and lets Kodak and Fuji duke it out here. Decide for yourself if there's a clear winner. And learn how some experts store their slides for efficient retrieval.



Kodak

24

While it's always nice after a presentation when someone comments favorably on my slides, the question that invariably follows makes me crazy. "What camera do you use?" This question seems to me as relevant as asking John Updike what typewriter he uses. A better question might be "What film do you use?"

Since we have the opportunity in our education-enriched area to attend many horticultural presentations in the course of a year, it does become apparent that some garden slides are simply better than others. Thus I began to ask this "film" question and quickly discovered that horticultural photographers have strong opinions and loyalties about this subject.

I use Fuji Velvia (50 ASA) film and like it for its vibrant colors. In fact, the colors are so bold that one can usually spot images made with this film in publications and on the projection screen. I quickly discovered, however, that my enthusiasm

was not shared by everyone. This provoked me to survey a wider group of horticulturists, educators, and home gardeners about their choice of film.

I had also been curious for some time about how the experts label, store, and retrieve their slides, and which slide emulsions retain their original colors through decades of storage. No doubt there are many articles available in photography publications and I could have contacted the manufacturers of slide film to learn their claims on color reproduction and storage life. However, I've always had greater respect in gardening matters for experience over what "the books says."

Alas, my survey did not resolve the issue. My correspondents were divided equally in their choice of Kodak vs. Fuji film and their reasons were enlightening.

Fuji vs. Kodak

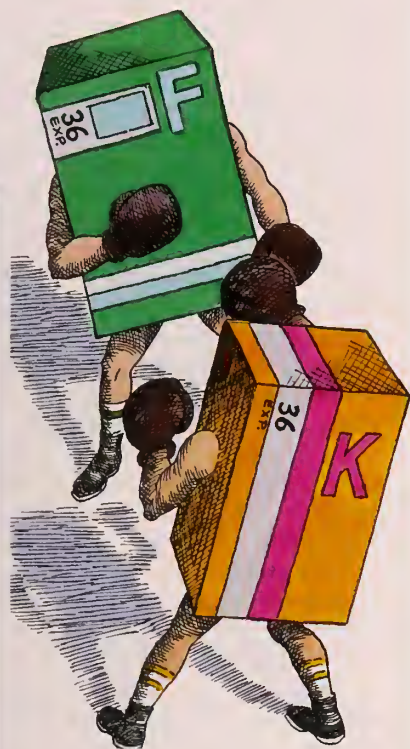
Rob Proctor agrees with me on Velvia film. "I've been using it for many years

after testing it in side-by-side comparisons with Kodak. Colors, especially greens, are more vibrant and true." Ann Lovejoy values it for its good saturation, good green/blue balance and "true color." Ken Druse said that although he had used Kodak Ektachrome Professional Plus for years, he found that clients tended to purchase his Fuji shots because they were brighter and cleaner with less brown in the shadows, and sharper. But, he quickly added, "not all that realistic — colorwise."

Bill Thomas disagrees: "I believe the (Fujichrome 100) colors, on average, are realistic. I have also been happy with Kodachrome 64, but the 100 ASA film gives me a bit more flexibility on light and the colors are a bit warmer. I have found Ektachrome 100 to be too blue."

Marco Polo Stufano tried several Kodak films and found that Fujichrome gave "consistently superior results." Mary Ann and Frederick McGourty also began using Fuji after trying many other types because

is the fairest of them all – Kodak or Fuji



Far left: *Cosmos bipinnatus*. Richard Bitner uses Fuji Velvia (50 ASA) and likes it for its vibrant colors. Near left: Marilyn Daly shot *Mirabilis jalapa* using Kodak Ektachrome Elite 100 ("Kodalux * R") film in plant trials that she was running this past summer, although she says she, too, usually uses Fuji.

of its color reproduction, especially blue, but echoed the complaint of many photographers: "It's quite expensive."

Christopher Woods has used Fuji film for years and also emphasized its usefulness for the green and blue color ranges, although he prefers Ektachrome for red flowers. L. Wilbur Zimmerman, who shot more than 125 rolls of film last year and has had many photographs published, was weaned from many years of Kodak use to Fujichrome 100 after a trip to the Southwest with a group of expert photographers and after reading numerous technical articles.

On the other hand, Rick Darke, who also takes thousands of photographs a year and frequently publishes, uses Fuji Velvia only if he is after difficult blues such as gentians or eupatoriums, or if he is shooting specifically for a publication that desires exaggerated contrast. Says Darke, "I settled on Kodachrome 64 many years ago, and have not yet found anything I like as much, though I've tried many others. Kodachrome,

People Who Answered the Film Survey

Margaret P. Bowditch — Horticultural lecturer, Temple University; photographer; gardener

Walter Chandoha — Freelance photographer/writer: his photographs have appeared on over 300 magazine covers and in thousands of advertisements. He has written and/or illustrated 25 books on animals and nature. His articles and photography have appeared in *National Geographic*, *New York Times*, *Horticulture*, *Country Living*, *Organic Gardening*, *Ladies Home Journal*, etc. He is a frequent contributor to *Green Scene*.

Pat Christopher — Instructor in Continuing Education and Professional Gardener Training Program, Longwood Gardens.

Rick Darke — Curator of Plants, Longwood Gardens; photographer, lecturer, author of *For Your Garden: Ornamental Grasses*, Little, Brown & Co., Boston, 1994.

Ken Druse — Photographer, gardener, writer, author of *The Natural Garden*, Clarkson Potter, NY, 1989; *The Natural Shade Garden*, Clarkson Potter, NY, 1992; *The Natural Habitat Garden*, Clarkson Potter, NY, 1994.

William H. Frederick, Jr. — Principal in landscape architecture firm Private Gardens, Hockessin, DE; author of *The Exuberant Garden and the Controlling Hand*, Little, Brown & Co., Boston, 1992.

Pamela J. Harper — Horticultural photographer and editor; author of *Designing with Perennials*, Macmillan, NY, 1991; *Color Echoes — Harmonizing Color in the Garden*, Macmillan, NY, 1994.

Richard W. Lighty, Ph.D. — Director, Mt. Cuba Center for Study of Piedmont Flora, Greenville, DE.

Ann Lovejoy — Garden writer and editor; frequent contributor to *Horticulture* magazine, author of *The American Mixed Border*, Macmillan, NY, 1993; *Further Along the Garden Path*, Macmillan, NY, 1995 (September).

Frederick and Mary Ann McGourty — Horticultural lecturers, designers and writers; *The Perennial Gardener*, Taylor's Guide to Ground Covers, Vines & Grasses, Houghton Mifflin, Boston, 1987.

Rob Proctor — Artist, photographer, garden writer, author of *Perennials*, Harper & Row, NY, 1990; *Annals*, Harper Collins, NY, 1991; and *Country Flowers*, Harper Collins, NY, 1991.

J.C. Raulston, Ph.D. — Professor of Horticultural Science, Director of the Arboretum, North Carolina State University; plantsman, lecturer, plant explorer; co-authored with Kim E. Tripp, *The Year in Trees: Superb Woody Plants for Four-Season Gardens*, Timber Press, Portland, Oregon, 1995.

Claire Sawyers — Director, Scott Arboretum, Swarthmore College, horticultural writer and lecturer.

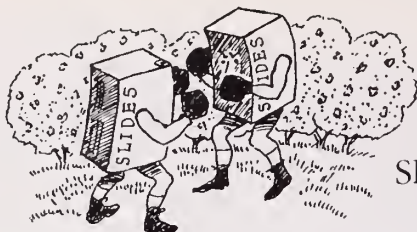
Marco Polo Stufano — Director of Horticulture at Wave Hill, Bronx, NY 10471.

R. William Thomas — Education Division Manager, Longwood Gardens; Regional director, Garden Writers Association of America; lecturer; editor of *Trees and Shrubs**, Hearst Books, NY, 1992.

Christopher Woods — Executive Director, Chanticleer Foundation, a public garden in Wayne, Pa.; author of *The Encyclopedia of Perennials**, NY: Facts on File, 1992.

L. Wilbur Zimmerman — Photographer, writer, orchid grower, panelist judge, Flower Show; certified judge of the American Orchid Society.

*Books available to members through the Pennsylvania Horticultural Society Library.



SLIDES, Which is fairest of them all – Kodak or Fuji

especially the slower formulations such as 64, has unparalleled ability to capture a wide range of greens. Much of my work involves trying to capture the beauty of subtler landscapes such as the eastern deciduous forest, or plants such as grasses. In these cases, it is not bold flower color but a myriad of greens in a multitude of textures, forms and lighting situations that provide the appeal. I find that Fuji Velvia tends to make all the greens look much the same, and a bit too bright and surreal. The exception is if you are shooting things where greens play a minor role. Velvia is bold and splashy for calendar-type shots, for example."

J.C. Raulston, who has taken and cataloged over 86,000 slides, also uses exclusively Kodachrome 64 as does Claire Sawyers whose labeled collection exceeds 32,000. William H. Frederick, Jr., also underscores the point that Kodachrome 64 provides the truest foliage and flower colors except for blue. He says that when a lot of blue is present "I can usually capture it by moving up one or two stops from the meter reading." He uses Kodachrome 200 when there is not as much light and considers it sometimes better with blue also. Pamela Harper, Richard Lighty, Walter Chandoha and Margaret Bowditch all prefer Kodachrome 64. "The main drawback of Kodachrome 64," pointed out Pamela Harper, "is that it can only be processed by Kodalux labs."

I asked everyone what print film they favor, but none of the respondents took print photographs.

Storage life of slides

One of the main reasons Margaret Bowditch gave for using Kodachrome 64 is that the slides are long-lasting. Pamela Harper and the McGourtys have not experienced fading of Kodachrome 64 over the last 25 years. L. Wilbur Zimmerman reported having slides dating to 1938 that still look good and Rick Darke related "I've seen Sir Peter Shephard give a stunningly colorful presentation using 40-year-old Kodachrome slides."

Rick Darke and many others reported that much younger Ektachrome, Agfa and Ilford slides had faded. Said Richard Lighty, "Almost all my Ektachrome slides taken before 1970 are worthless. Kodachrome has shown no significant change." J.C. Raulston uses Kodachrome slides that are 30 years old in lectures but suspects that

storage in cool temperatures and darkness are far more critical than film type. Pat Christopher made the important point that storage life and projection life are different subjects. She is concerned that film that stores well may not hold up well with projection and duplicates all important slides and protects the copies. Ken Druse recounted that Kodachrome emulsion slides stored in vinyl sleeves deteriorated in about three to four years.

Labeling our slides is a "nightmare never to be caught up with," says Wilbur Zimmerman. "I have something in the neighborhood of 25,000 slides, and I would not recommend my procedure to any one."

None of the Fuji users could give witness since the film has not been in general use as long, although Christopher Woods thinks Fuji will last about 10 years before beginning to fade.

Slide storage and labeling methods

Most of us understand Marco Polo Stufano's comment that the storage and labeling of our slides is a "nightmare never to be caught up with." Wilbur Zimmerman called it a "sore subject for many people . . . I have something in the neighborhood of 25,000 slides, and I would not recommend my procedure to any one."

Most of my advisors label their plant slides and file them alphabetically by scientific name. Often these are within categories, e.g., annuals, perennials, shrubs, botany, garden design, garden history, etc. Garden slides are often filed geographically. Many like William H. Frederick, Jr., use a pencil or a Pilot razor point pen for marking slides mounted in cardboard. When the mounts are plastic he recommends the Sanford Sharpie Permanent Marker 'Ultra Fine Point.'

Many mark the actual date the image was taken and those who often lend slides have a rubber stamp with their name and address that will fit the slide mount space. Although some people use stick-on labels, L. Wilbur Zimmerman thinks the extra thickness of glue-on labels can contribute to some of the jamming that occurs in projectors.

For more exacting retrieval methods I turned to three arboretum curators who own tens of thousands of slides that they

use regularly from their collections. Each has a different method.

The Claire Sawyers Method

Claire files her slides alphabetically by plant or by place, grouped by countries and states. She often keeps slides for specific lectures separate. "I use the inexpensive metal boxes with the metal dividers inside (no plastic inserts) because these are 1) Inexpensive; 2) Flexible. I can carry a few boxes back and forth from office to home to work for a specific lecture with ease; and 3) Because I cut up old slide boxes for divider slips and mark the headings on it, I can fill the drawer full of slides and not waste space with metal or thicker dividers. For my plant slides I have one drawer for A–Cc, one for Ce to Cu, etc. When a drawer fills up, I just add a new box to further split the alphabet. These metal boxes cost about \$13 and can hold 140 per section × 6 sections per drawer = 840 slides/drawer the way I use them.

I keep a slide log of which slides I have sent out on loan. I always put them in a plastic sleeve and tape the top row so those slides don't fall out; I just photocopy the sleeves as a quick record of the slides I've sent.

The Rick Darke Method

Rick keeps a detailed pocket-size photo notebook with his camera and records the date and subject data just after taking the picture. He is on his 48th notebook. "The first thing I do when I get slides back from processing is to stamp the date on them. This allows me to use them before name-labeling each, yet I can still reconstruct roll and image order for fuller labeling later. I have a number of Neumade 5-drawer (S-F-5S) model metal cabinets, which are ideal for slides stored alphabetically or in certain cases by project or category. I also store certain topics, and especially slides from particular trips, in three-ring binders of plastic (safe-type) slide pages."

The J.C. Raulston Method

Raulston marks each slide with two numbers: one identifies which metal storage box it goes in (now 123 boxes, each holding 700 slides) and the second number locates the position within that box, e.g., 67–205. The slides are filed in metal slide boxes that have 30 cells each holding 22–24 cardboard mounted slides.

For each of the lectures in the many

courses he teaches he has a list of the slide numbers. "The key is that each slide has a specific identity and a specific place it belongs, like books in a library. Slides are pulled and after being used they are returned to where they can be found next time. Some weeks I pull and refile a thousand slides. This system is fast, easy and effective. Large trips can be filed sequentially in the order they were taken. Categories can be set up for individual cells in advance and filed there as slides come back for that subject until the cell is full. More recently I went to a computer indexing system using a spreadsheet. It is fast and easy to enter each slide using a key-word index for every permutation of use or interest you might possibly conceive of for that slide. Then you can sort to find various keywords, e.g., a (*Quercus robur*) (leaf) in (England) at (Sissinghurst).

This is a good system with the problem of 35 years of backlog photography to catch up on. At 30 slides/day it would take eight years assuming no new slides, which is daunting. But the reality is that not all of one's slides are good, or ever used. So my policy now is to enter all new slides the day they arrive and also enter any old slides I've pulled to use before they are refiled. I've had the new system about eight months, and about 8,000 slides are already indexed and filed. My system is not exotic or complex but is cheap and easy and works as well as any other I've seen."

Other Methods

Christopher Woods also enters his slides into a computer database, but reports that he files his slides in plastic sheets, hung in file folders in a file cabinet kept in a relatively dry and mild room. Marco Polo Stufano also favors the archival plastic hanging file sleeves. Margaret Bowditch suggests throwing away all but your best slides as the more you have, the more difficulty you having storing and retrieving. A frequent lecturer, she color codes the top edge of the slide to identify it as used in a specific talk.

Additional advice

- Whatever the storage/retrieval system, most of the advisors mentioned the importance of storing slides in a cool, dry area safe from fire. Some respondents duplicate important, must-have, or frequently projected slides and protect the originals
- Margaret Bowditch suggests sticking

SHARPEN YOUR PHOTOGRAPHIC SKILLS

The Pennsylvania Horticultural Society Presents A Back to Basics For Outdoor Photography Workshop at Chanticleer, Wayne, Pa.

Friday, April 19, 9 am - 3 pm

Follow-up session for critique and review: May 3; time and location to be announced at April session.

Fee: Members \$40; guests \$45.

Photographers Ann Reed and Jane Ruffin developed this workshop for PHS members who wish to improve their photographic skills and/or become more comfortable using a camera's manual settings for better photographs. The course is designed for less experienced shutterbugs with 35mm cameras. Participants must understand how to load and unload film and have read the camera manual.

Ruffin and Reed have devised effective ways to demonstrate photographic principles. The workshop will feature classroom instruction and an afternoon of photography.

PHS members and their guests may register through PHS News; others should contact Sally Kutyla at (215) 625-8276.

Longwood Gardens Presents Photographer Derek Fell

March 18 at 7:30 pm at Visitor's Center Auditorium

Fee: \$21; includes dessert reception

Derek Fell, author of more than 50 garden books, will talk about how to photograph flowers, plants and gardens; he will discuss cameras, films, accessory equipment; techniques and lighting; and offer valuable tips for the amateur and professional photographer.

For registration information, call Continuing Education, (610) 388-1000, ext. 516 during business hours: Weekdays: 8-11:30 am, 12:30-4 pm.

with one film speed to avoid the problem of forgetting to change the ASA setting on the camera.

- L. Wilbur Zimmerman offered valuable advice about slides for publication. "I bracket, that is, shoot a slide a half stop over, and one a half stop under. Usually one will be better for reproduction than the other two. Frequently it's not the one that looks best in the projector; which will turn out a little too dark on paper. That half stop makes more difference than would be expected. I judge the slides both by projector and on the light box. You should know the idiosyncrasies of the particular publication."
- Claire Sawyers advises buying slide film in quantity and storing it in the refrigerator and always taking more film on a trip than you think you'll possibly use so you don't get stuck without. "And," she says, "I always take a spare battery for both of my cameras."

In the final analysis, just how important a consideration is film selection in capturing the perfect image of one's garden? It appears to be a matter of taste just as the art of gardening itself. William H. Frederick, Jr., asserts that the most important factor in getting good garden pictures is not choice of film at all, but lighting. "Invariably," he

says, "morning and late afternoon light is the most flattering to gardens."

Regardless of the film we load in our camera, photographing gardens provides many benefits besides a lasting record. Claire Sawyers shared the following: "For me, taking slides of gardens has been a great way to slow down in a garden, a great way to learn plants . . . it's an avenue that has led to lecturing, which in turn has been an avenue to meet people and travel. In short, a great source of satisfaction. I strongly encourage our staff members to take up slide plant and garden photography because of all that can develop from it, other than just an image on some piece of film."

As spring approaches and color dominates our landscape again, I am hopeful *Green Scene* readers will experiment for themselves and compare the films and techniques these consultants recommend. Then write the editor and share your findings. You will likely echo with me Rick Darke's comment "I owe so much of my pleasure in landscape observation to skills the camera has taught me."

Richard L. Bitner is a physician anesthesiologist and a teaching assistant in Longwood Garden's continuing education program. He photographs and gardens at his old farm in Lancaster County.

March/April Green Scene Crossword

 created by Michael J. LoFurno



ACROSS

2. cherry flower
5. afternoon (abbr.)
6. deciliter (abbr.)
7. singular of 8 down
9. not sunny
10. article
11. underground (abbr.)
12. scent
16. freight bill (abbr.)
17. a *Lilium*
23. in like a _____ (Zodiac)
24. to inspire
25. not young
27. robin _____
29. top grade
31. bitter medicinal of the Rutaceae; sorrow
32. a mistake
33. _____ ennial
34. sound doves make
35. A Gramineae
38. the big *Viola*
39. made while the sun shines
40. half-day, half-night

DOWN

1. Farmer's Guide
3. some clovers bring this
4. shell-less snail
5. Bradford _____
6. beds twice prepared
8. small *Rhododendron*
13. Rhode Island (abbr.)
14. spinning top or Greek sandwich
15. hot spring
16. shovel sharpener
18. not work
19. not drunk (on Maywine)
20. March rabbit
21. have on, as with gloves or a smile
22. large flat rock
26. a kind of *Chrysanthemum*
28. planting flat
30. she pined for Hyacinth (myth.)
31. by any other name
36. the ram (Zodiac)
37. exhibition
38. peace

Answers on page 33

Plant Societies' Special Meetings and Sales 1996

 by Christine Howse

CYLBURN ARBORETUM ASSOCIATION, INC.

Market Day
May 11, 8am-2pm
Cylburn Arboretum
4915 Greenspring Avenue
Baltimore, MD 21209

Exotic Plant Day
September 7, 8am-2pm
Cylburn Arboretum

Contact:
Jane Baldwin
Tuesday & Thursday
10am-3pm
410-367-2217

FRELINGHUYSEN ARBORETUM HARVEST SHOW & PLANT SALE

Plant Sale
Sept. 13, 12:30-8pm
Sept. 14-15, 11am-5pm
Frelinghuysen Arboretum
53 East Hanover Avenue
Morristown, NJ 07962-1295

Show entries open to public; free admission
Plant sale by NJ Committee-Garden Club of America

Contact:
Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962-1295
201-326-7600

TYLER ARBORETUM

Arbor Day Celebration
April 27, 10am-3pm
Tyler Arboretum
515 Painter Rd.
Media, PA 19063-4424
Free admission

Biennial Plant Sale
Sept. 14, 10am-3pm
Tyler Arboretum
Free admission
For advance order
catalog, call
610-566-5431
Order deadline, May 17

Contact:
Roxanne Heaton
515 Painter Road
Media, PA 19063-4424
610-566-5431

AFRICAN VIOLET SOCIETY OF AMERICA, INC.

50th Anniversary Convention
May 20-25
Holiday Inn Crown Plaza
Ravinia, Atlanta, GA
Registration fee for members
Free admission to public on
May 24

Plant Sale
May 22-25, 10am-6pm
Holiday Inn, Crown Plaza
Ravinia, Atlanta, GA
Commercial Growers
Exhibit
Hundreds of plants on
exhibit in competition

Contact:
Anne Tinari, Membership &
Promotion Chair
2325 Valley Road
Huntingdon Valley, PA
19006
215-947-0144

AFRICAN VIOLET SOCIETY OF PHILADELPHIA

35th Annual African Violet Show & Plant Sale
Sat., May 4, 1pm-5pm
Sun., May 5, 12noon-4pm
Watertown Recreation Center
Ardleigh & Hartwell Sts.
Chestnut Hill, Philadelphia, PA 19118
Free admission

Contact:
Margaret Cass
920 Andorra Road
Lafayette Hill, PA 19444
215-836-5467

DELAWARE AFRICAN VIOLET SOCIETY

African Violet Show
"Violets in the Orient"
March 30, 1:30pm-9:30pm
March 31, 11am-6pm
Christiana Mall, off I-95
Newark, DE
Free admission, open to the
public
AVSA affiliated and judged

Plant Sale
Same as show

Contact:
Andrea Pirone
Chair — 302-994-0513
Barbara Borleske
Publicity — 302-239-1665

SPRINGFIELD AFRICAN VIOLET SOCIETY

"Kaleidoscope of Violets" Show & Plant Sale
April 26, 11am-7pm
April 27, 11am-9pm
April 28, 12noon-5pm
Springfield Mall
Baltimore Pike & Sproul Road (Route 320)
Springfield, PA 19064
(Delaware County)

Contact:
Nancy Corse
222 Ridgewood Rd.
Media, PA 19063
610-566-5042

TRI-STATE AFRICAN VIOLET SOCIETY

Annual Show & Sale
Nov. 2, 1:30pm-5pm
Nov. 3, 10am-4pm
Frelinghuysen Arboretum
53 E. Hanover Ave.
Morristown, NJ 07962

Contact:
Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962
201-326-7600



The 57th annual Herb Sale will be at a new location: Historic Yellow Springs in Chester Springs. Says the photographer of the Herb Society of America, The Philadelphia Unit, Linda Madara, "Our plants are always the best and include the unusual."

THE GREAT SWAMP BONSAI SOCIETY EXHIBITION

June 8, 10am-4pm
Frelinghuysen Arboretum
53 E. Hanover Ave.
Morristown, NJ 07962

Contact:
Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962
201-326-7600

HISTORIC BARTRAM'S GARDEN

Annual Native Plant Sale
May 4, 10am-4pm
Historic Bartram's Garden
54th St. & Lindbergh Blvd.
Philadelphia, PA 19143

Contact:
Michele DiGirolamo
Historic Bartram's Garden
215-729-5281

UNIVERSITY OF DELAWARE BOTANIC GARDENS

Annual Plant Sale
Friends Preview: April 18, 4-7pm
Presale Pick-up: April 19, 2-8pm
Open Sale: April 20, 10am-4pm
Fischer Greenhouse
Newark, DE (on College Ave., near football stadium)

Contact:
Dot Milson
Dept. of Plants & Soil
Sciences
Univ. of Delaware
Newark, DE 19717
302-831-2531

PHILADELPHIA CACTUS AND SUCCULENT SOCIETY

Philadelphia Flower Show
Feb. 25 - Mar. 3
Pennsylvania Convention
Center
1201 Arch St.
Phila., PA
\$14.50 admission to Show

Meetings
Second Sunday
Sept-June (first Sunday
in May) 1:00pm
Horticulture Center
W. Fairmount Park
Philadelphia, PA

Contact:
Rita B. Hojnowski
517 Cecelia Drive
Blackwood, NJ 08012-3808
609-227-0599

DELAWARE VALLEY CHRYSANTHEMUM SOCIETY

**Annual Chrysanthemum
Show**
Oct. 12, 1-5pm
Oct. 13, 10am-5pm
Longwood Gardens
Kennett Square, PA 19348
Longwood Admission: \$10.00

Contact:
Ralph Parks
Tyler Arboretum
Media, PA 19063
610-566-5644

NEW JERSEY STATE CHRYSANTHEMUM SOCIETY

43rd Annual Show & Sale
October 12, 2-6pm
October 13, 1-5pm
Frelinghuysen Arboretum
53 E. Hanover Avenue
Morristown, NJ 07962

Contact:
Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962
201-326-7600

AMERICAN CONIFER SOCIETY

3-Day Eastern Region Meeting
October 4-6,
Lectures, Plant Sale and Garden Tours
Harrisburg Marriott
Harrisburg, PA 17111
Fee approximately \$125, plus hotel

Contact:
Frank Goodhart
27 Oak Knoll Road
Mendham, NJ 07945
908-879-4788

2-Day Central Region Meeting

June 14-15
Lectures, Plant Sale and Garden Tours
Cincinnati, OH (TBA)
Fee: TBA

Contact:
Arlene Dunn
22441 Bigler Road
LaCrosse, IN 46348
Ph: 219-754-2171
Fax: 219-754-2723

AMERICAN DAFFODIL SOCIETY

41st National Convention & Show
April 18-20
April 18 — 2pm-6pm
April 19 & 20 — 10am-6pm
Sheraton Baltimore North Hotel
903 Dulany Valley Road
Towson, MD 21204
Open to the public free of charge

Contact:
For exhibitor information
Mrs. Rene Pallace
11404 Garrison Forest Rd.
Owing Mills, MD 21117
410-356-1097

DELAWARE VALLEY DAFFODIL SOCIETY

Daffodil Show at Longwood Gardens
April 23 & 24, 10am-5pm
Longwood Gardens
Kennett Square, PA
Longwood Admission Fee: \$10

Contact:
Elise Payne
643 Fernfield Circle
Wayne, PA 19087
610-688-4377

NEW JERSEY DAFFODIL SOCIETY

21st Annual New Jersey Daffodil Show
April 26, 1-4pm
April 27, 10am-4pm
Frelinghuysen Arboretum
Haggerty Building
53 E. Hanover Ave.
Morristown, NJ 07960

Contact:
Shirley Cameron
231 Davison Place
Englewood, NJ 07631
201-569-9257

TUSCARORA DAFFODIL GROUP

Chambersburg Daffodil Show
April 27, 28
Chambersburg Mall
Chambersburg, PA
Free admission

Fall Bulb Exchange
Oct. 20
Tentative 2pm
Location: TBA

Contact:
Richard Ezell
94 Willowbrook Dr.
Chambersburg, PA
17201-3017
H-717-264-2269
W-717-334-0163

DELAWARE VALLEY DAYLILY SOCIETY

Daylily Show
July 13, 12noon-5pm
Church on the Mall
Plymouth Meeting Mall
Plymouth Meeting, PA

Plant Sale
August 24
Sale 9am
Auction 12:30pm
Church of the Good
Samaritan
Route 30 & Paoli Pike
Paoli, PA

Contact:
Mitzi Samples
P.O. Box 159
Nottingham, PA 19362
Show: 717-548-2381
Sale: 610-458-0177

FRELINGHUYSEN ARBORETUM GESNERIAD SOCIETY

Show & Sale
Oct. 6, 10am-4pm
Frelinghuysen Arboretum
53 E. Hanover Ave.
Morristown, NJ 07962

Contact:
Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962
201-326-7600

AMERICAN GLOXINIA AND GESNERIAD SOCIETY, LIBERTY BELL CHAPTER

Show
TBA

Plant Sale
TBA

Contact:
Laura Shannon
8845 Norwood Ave.
Phila., PA 19118
215-247-8527

Monthly Meetings
3rd Tuesday monthly (except
summer), 7:30pm
Members' homes, TBA
Annual dues: \$3

HOBBY GREENHOUSE ASSOCIATION

DELAWARE VALLEY CHAPTER

**"How to Build Hobby
Greenhouse" Symposium**
Sept. 28, 1pm
Horticulture Center
Fairmount Park
Philadelphia, PA 19131

Auction
June 15, 10am
Horticulture Center
Fairmount Park

Contact:
Bernie Wiener
229 Ellis Rd.
Havertown, PA 19083
610-446-2160

HERB SOCIETY OF AMERICA

DELAWARE VALLEY UNIT

Maying in the Middle Ages
Tea & Lecture by Diedre
Larkin, Horticulturist, The
Cloisters
May 18, 1-3pm
Prallsville Mill
River Road
Stockton, NJ 08559
Tickets-\$12, Call for
reservations
609-395-8525

Plant Sale
Culinary & Medieval
Herbs
May 18, 10am-1pm,
3-4pm
Prallsville Mill

Contact:
Joan Schumacher
25 Rosemore Drive
Chalfont, PA 18914
215-997-1549

(TBA = To be announced)

Plant Societies' Special Meetings and Sales, 1996

HERB SOCIETY OF AMERICA, PHILADELPHIA UNIT

Annual Herb Sale

Back to the Country
May 9, 10am-2pm
Rain or Shine
Historic Yellow Springs
Chester Springs, PA 19425
Free admission

Contact:

Sandy Salkeld
P.O. Box 562
Chester Springs, PA 19425
610-933-1429

HERB SOCIETY OF AMERICA, NORTHERN NEW JERSEY UNIT

Herbes De Provence 26th Annual Herb Sale

May 11, 10am-3pm
Delbarton School —
Morristown, NJ 07060
Rt 24 (3 miles west of
Morristown Center)
Free admission

Contact:

Betty Robrecht
8 Hillcrest Blvd.
Warren, NJ 07059
908-769-5640

PENNSYLVANIA HEARTLAND HERB SOCIETY

Herbal Delights 14th Herbal Symposium

June 17, 18
Registration 7:30am (6/17)
Programs begin 9am
Albright College
Reading, PA

Plants will be sold at
symposium

Contact:

Barbara Angstadt
206 Woodside Ave.
West Lawn, PA
19609-1640
610-678-3292

THE HIGHLANDS HISTORICAL SOCIETY

The Highlands 200th Anniversary Celebration

May 5, Time: TBA
7001 Sheaff Lane
Fort Washington, PA 19034

Contact:

Stephen Hague
7001 Sheaff Lane
Ft. Washington, PA 19034
215-641-2687

HORTICULTURAL SOCIETY OF SOUTH JERSEY

Flower Shows

May 14, 7:30pm and
September 19, 7:30pm
Cherry Hill Community
Room

820 Mercer Street
Cherry Hill, NJ 08034
Free admission

Monthly Meetings

2nd Tuesday, September
thru June 7:30pm
Cherry Hill Community
Room

Contact:

Rita B. Hojnowski
517 Cecelia Drive
Blackwood, NJ 08012-3808
609-227-0599

DELAWARE VALLEY HOSTA SOCIETY

Lecture by Jim Wilkins, Am. Hosta Soc. VP & Plant Sale

March 16, 1pm plant sale,
2pm slide lecture
Ramada Inn
Rt. US 1 & Rt. US 202
Chadds Ford, PA 19317
Free & open to public

Garden Visits & Plant Auction

June 8, 2pm, 2:30 sale
Eli Cohen residence
136 Farwood Rd.
Wynnewood, PA 19096
Rain or shine
Free & open to public

Contact:

Warren Pollack
DVHS President
202 Hackney Circle
Surrey Park
Wilmington, DE
19803-1911
302-478-2610

30 DELAWARE VALLEY IRIS SOCIETY

Plant Sale

July 13, 10am-2pm
Jenkins Arboretum
631 Berwyn-Baptist Rd.
Devon, PA 19333

Contact:

Charles & Betty Conklin
91 Duncan Lane
Springfield, PA
19064-1601
610-544-3984

DIAMOND STATE IRIS SOCIETY

Bearded Iris Show

May 25, 12noon-5pm
Delaware Center for
Horticulture
1810 N. Dupont St.
Wilmington, DE 19806
Free admission

Plant Sale

July 13, 9:30am-2pm
Lantana Square
Shopping Center
Route 7 & Valley Rd.
Hockessin, DE 19707

Contact:

Esther Martin, Secretary
116 Meriden Drive
Hockessin, DE 19707
302-998-2414

MID-ATLANTIC LILY SOCIETY

32nd Annual Lily Show

June 22, 1:30-5:30pm
June 23, 10am-5pm
Longwood Gardens Terrace
Restaurant
Lower Level
Kennett Square, PA 19348
Fee: \$10 admission to
Longwood Gardens

Plant Sale

October 27, 1-3pm
Jenkins Arboretum
631 Berwyn Baptist Rd.
Devon, PA 19333

Contact:

Jerry Sellers
35 W. Phil-ellena St.
Philadelphia, PA 19119
215-849-1928

MARIGOLD SOCIETY OF AMERICA

Major Event TBA

Contact:

Jeannette Lowe
PO Box 5112
New Britain, PA 18901
215-348-5273

FRIENDS OF THE NATIONAL ARBORETUM

5th Annual Rare Plant Auction & Gardeners' Plant Sale

April 20, 9am-5pm
US National Arboretum
3501 New York Ave., NE
Washington, DC 20002

Contact:

Sherry Houghton
Cumberland St., N.W.
Washington, DC 20002
202-966-9192

NEW JERSEY NATIVE PLANT SOCIETY

Annual Meeting

March 23, 10am
Holly House, Cook College
New Brunswick, NJ 08903
Free admission

Plant Sale

May 18 & 19, 9am-5pm
Display Gardens
Cook College

Contact:

Jeff Bottger
c/o T&M Associates
11 Tindall Road
Middletown, NJ 07748
908-842-5839 (H)
908-671-6400 (W)

DELAWARE NATURE SOCIETY

Native Plant Gardening Seminar

March 30, 8:30am-2pm
Ashland Nature Center
Brackenville & Barley Mill
Rd.

Hockessin, DE
Pre-registration Cost — \$38
(w/lunch);
without lunch \$30

Native Plant Sale

May 4, 9am-5pm
May 5, 10am-3pm
Ashland Nature Center
Free admission

Contact:

Linda Young
302-239-2334

IRVINE NATURAL SCIENCE CENTER

Irvine Native Plant Symposium and Plant Sale

August 24, 8am-3pm
Irvine Natural Science Center
St. Timothy's School (exit 22)
Stevenson, MD 21153

Contact:

Dick Gibbs
Irvine Natural Science
Center
410-484-2413

DELAWARE ORCHID SOCIETY, INC.

Monthly Meetings

Second Tuesday every
month 7:30pm except
July & August
Delaware Veteran's Hall
Naaman's Road, DE
Free admission

Plant Sale

March 17, 1pm
Talleville Fire Hall
Route 202
Talleville, DE

Contact:

Art Chadwick
520 Meadowlark Lane
Hockessin, DE 19707
302-656-1091

DELAWARE VALLEY ORCHID COUNCIL

8th Annual DVOC Speakers Forum

Speakers: Ray Thomson, Bob Burkey, Steve Shifflett,
Nancy Volpe
Topics: Ecuadorian species, Miniature cymbidiums,
Vandaceous hybrids, Phragmipediums
April 13, 8:30am-4pm
Travelodge Hotel, Mt. Laurel, NJ
Fee: \$25 (includes lunch)
10 dealers will sell orchid plants

Contact:

Lois Duffin
7411 Boyer St.
Phila., PA 19119
215-248-3626

GREATER PHILADELPHIA ORCHID SOCIETY

Monthly Meetings

3rd or 4th Thursday,
September thru June, 8pm
Merion Friends Activity
Center
615 Montgomery Ave.
Narberth, PA
(next to General Wayne Inn)

Annual Orchid Auction

Sept. 26, Preview 7pm,
Auction 7:30pm
Merion Friends Activity
Center

Contact:

Lois Duffin
7411 Boyer Street
Phila., PA 19119
215-248-3626
Tee Adams
P.O. Box 328
Devon, PA 19333-0328
610-687-5600

SOUTHEASTERN PENNSYLVANIA ORCHID SOCIETY

Orchid Show at the Court at King of Prussia

Feb. 1-4, mall hours
The Court at King of Prussia
Lower Level

Orchid Auction TBA

Contact:

Deborah W. Robinson
2604 Horseshoe Trail
Chester Springs, PA 19425
610-827-7445

AMERICAN PRIMROSE SOCIETY, DORETTA KLABER CHAPTER

Seed Sowing Meeting

Feb. 17, 10am
Plyler residence
18 Bridle Path
Chadds Ford, PA 19317
\$5 members fee, event limited
to members but new
members welcome

Plant Sale

June TBA

Contact:

Dot Plyler
18 Bridle Path
Chadds Ford, PA 19317
610-459-3969

FRIENDS OF THE FRELINGHUYSEN ARBORETUM

Rare Plant Auction & Distinctive Plant Sale

May 4-5, 10am-3pm
Frelinghuysen Arboretum
53 E. Hanover Ave.
Morristown, NJ 07962
Benefit Preview Night Auction — May 3

Contact:

Nancy Strong
Frelinghuysen Arboretum
PO Box 1295
Morristown, NJ 07962
201-326-7600

AMERICAN RHODODENDRON SOCIETY, VALLEY FORGE CHAPTER

Truss Show

May 19, 10am-5pm
Longwood Gardens
Kennett Square, PA 19348
Longwood admission fee \$10

Plant Sale

May 4, 9am-3pm
May 5, 11am-3pm
Jenkins Arboretum
631 Berwyn Baptist
Road, Devon

Contact:

Winfield W. Howe
7 Surrey Lane RR 2
Downingtown, PA 19335
610-458-5291

NORTH AMERICAN ROCK GARDEN SOCIETY, DELAWARE VALLEY CHAPTER

NARGS-1997 Winter Study Weekend — The Essence of a Far Place

Jan. 24-26, 1997
Friday afternoon thru Sunday
Noon
Valley Forge Sheraton
Fee: approx. \$110

Plant Sale

June 8, 10am
Robbins Nature Center
Ambler, PA

Contacts:

Plant Sale

Mike Slater
RR 5, Box 5820
Mohnton, PA 19540
610-775-3757

Study Weekend

Anne McClements
50 S. Prestwick Ct.
Dover, DE 19101

DEL-CHESTER ROSE SOCIETY

36th Annual Rose Show

June 8, roses entered
7-10:30am
Open to public 1-6pm
Terrace Restaurant
Longwood Gardens
Route 1, Kennett Square, PA
Show Chair: Elaine Adler

Pruning Demonstration

April 6, 9am-12noon
Memorial Rose Garden
St. Maximilian Kolbe
Church
15 E. Pleasant Grove Rd.
off Route 202 S of West
Chester

Contact:

Pat Pitkin
923 Springwood Drive
West Chester, PA 19382
610-692-4076

PHILADELPHIA ROSE SOCIETY

50th Annual Rose Show

June 1, roses entered
7-10:30am
Widener Education Center
Morris Arboretum of the
University of
Pennsylvania
Chestnut Hill, Phila., PA
19118
Gate fee: \$3, free to exhibitors

Pruning Demonstration

March 30, 1pm
Rain date April 6
Morris Arboretum Rose
Garden
100 Northwestern Ave.
Phila., PA 19118

Contact:

Pat Pitkin
923 Springwood Drive
West Chester, PA 19382
610-692-4076

WEST JERSEY ROSE SOCIETY

43rd Annual Rose Show

June 1, 1-8:30pm
Roses entered 7-10:30am
Burlington Center Mall
Center Court
Route 561
Burlington, NJ 08016
Free admission

Monthly Meetings

1st Wed. of month
7:30pm except
January & July
Voorhees Community
Center
White Horse & Berlin
Roads
Voorhees, NJ 08043

Contact:

Rose Schwarzkopf
54 Meadowrue Drive
Mt. Laurel, NJ 08054
609-235-2014

BOWMAN'S HILL WILDFLOWER PRESERVE

Spring Plant Sale & Demo

May 11-12, 10am-4pm
Bowman's Hill Wildflower
Preserve
Route 32, two miles south of
New Hope, PA

Fall Plant Sale & Demo

Sept. 7-8, 10am-4pm
Bowman's Hill
Wildflower Preserve

Contact:

Bridget Salantri
PO Box 103
Washington Crossing, PA
18977
215-862-2924

BRANDYWINE CONSERVANCY

Annual Wildflower, Native Plant & Seed Sale

May 11-12, 9:30am-4:30pm
Brandywine River Museum
Route 1 & 100
Chadds Ford, PA 19317

Contact:

Mark Gormel
Route 1
Chadds Ford, PA 19317
610-388-2700

Additional Plant Society Information

For list of other local and national plant society contacts, check with the Pennsylvania Horticultural Society Library (215-625-8256).

For Future Listings

Green Scene publishes a list of area plant society meetings and plant sales annually in the March issue of *Green Scene*. DEADLINE: October 30. Please follow format used here. Write to: Editor, *Green Scene*, PHS, 325 Walnut Street, Philadelphia, PA 19106-2777.

Letters to the Editor

Fragrant Trumpets/Green Scene, Jan./Feb.

Fragrant Trumpets by Michael J. LoFurno alerts readers to the possibilities of selecting daffodils for the pleasure of their varying fragrances, but could confuse the unwary reader who does not live and breathe daffodils at this time of year. Those of us who do, call them daffodils or *narcissus* never *narcissi*. Daffodils are classified in twelve different divisions based on both parentage and morphology, and only those in which the corona is longer than the perianth segments are designated as trumpets; color and size have no bearing on classification.

Readers hoping to incorporate some of the cultivars (not varieties) mentioned by Mr. LoFurno should be alerted that the captions for 'Hoopoe' and *N. xgracilis* have been reversed* and that the flower identified as 'Cantabile' is not (it may be 'Milan'). Some of the cultivars listed in his table will not thrive well in the Delaware Valley. 'Erlcheer' is not reliably hardy, 'Pencrebar' blasts and probably will not come up a second year. 'Ice Wings,' 'Liberty Bells,' and 'Stint' all tend to "go down" and disappear. 'Avalanche,' 'Falconet' and 'Hoopoe' are not reliably hardy and 'Silver Chimes' tends to harbor virus. Of those listed by the author in Division X, only *N. jonquilla* **never** properly called 'simplex') and *N. poeticus recurvus* are regarded as occurring in the wild and should be considered in Division X.

In order to help others to garden successfully in the Delaware Valley, it is necessary to have worked many years in the garden, keeping records, taking mental notes and coming to know the wiles of numerous cultivars. Snow drops (late February to early March blooming) are said to "face" 'Suzy' (late April blooming) in a raised bed. No way will these two bloom together and 'Suzy' will most likely have two blooms. Certainly it will not have more than three blooms except from new Dutch bulbs. The author affixes stem lengths to all the cultivars in his table. There is probably a gene for stem length but moisture, amount of shade and temperature are the significant determinants. Ask anyone who has forced for the Flower Show.

Fragrance is indeed an individual perception, but almost all daffodils derived from species of the *jonquilla* and *tazetta*

continued

sections have strong fragrance. It takes a large field of poets to overwhelm one with fragrance. I have never been more than slightly thrilled by the faint fragrance from any *N. triandrus* hybrid. There are some wonderfully spicy doubles that are far more fragrant than those on the author's list, with the exception of 'Erlicheer.'

I have found no evidence to support the author's assertion that "years ago, the **Poeticus** (properly the Poets [Division IX] or *N. poeticus* hybrids) were the most desired" (most of what by whom?) nor do I understand why he refers to the species as the "last and purest" — purest what? I love the species and will be making my ninth trip to Spain shortly to study them. With all that familiarity, I fail to think of them as "pure" or "purest."

Kathryn S. Andersen
Wilmington, DE

[Editor's note:] Whoops. We switched photo positions and neglected to switch captions.

Michael LoFurno responds:

Ms. Andersen's comments reflect her many years of experience and observation and I want to thank her for taking the time to read my article so thoroughly. Her letter warrants a thorough response.

Nomenclature:

Latin vocabulary rules are clear that the plural of *narcissus* is *narcissi*. The fact that many horticulturists do not follow these rules does not make the rules obsolete. The Latin *narcissus* has been transliterated from the Greek *Narkissos* and is considered a second declension noun — like *alumnus* whose plural is *alumni*. Both *Botanical Latin* (William T. Stearn, David & Charles, 1983) and my copy of *Webster's* agree. A number of suppliers (e.g., Dutch Gardens, Scheeper's, and VanEngelen) and even a recent *Holland Growers' Nursery Update* use the word *narcissi*. Of course, English tolerates popular usage and also accepts the words "narcissus" and "narcissuses" as plural forms. I prefer the simpler *narcissi*.

As far as my use of the word "trumpet," the writer is correct that only Division I is properly called Trumpet Narcissi, as my chart indicated. Many plants have many common names; that is why scientific names are so important. To wit, Southerners call *N. ×biflorus* "twin-sisters" or "April



narcissus," while Northerners call it "May narcissus." I have used the word "trumpet" to create a literary metaphor. Consider it my own personal "common name."

The note "=simplex" was shown in my chart to indicate that some catalogs do list *N. jonquilla* (although incorrectly) as *simplex*. This note will hopefully assist some reader in finding the right bulb.

Hardiness:

The writer is correct in pointing out that not all bulbs mentioned in the article are hardy everywhere. As an urban gardener in Philadelphia, I realize that my particular microclimate allows me to grow some plants that others cannot. Likewise, not all plants hardy in northern Delaware are hardy in upper Bucks County. *Green Scene* is distributed to members of PHS as well as to members of horticultural organizations located in a range from Rhode Island to Texas. Before purchasing any seeds, bulbs, or plants for your garden, check to make sure they are appropriate for your particular situation.

Stem lengths:

These were included for comparison purposes. It is important to know that 'Canaliculatus' is likely to grow only half as tall as 'Cantabile.' Of course, the actual height in any given year and in a particular location will, as the writer said, depend on light and moisture conditions as well as temperature and nutrients. This is true of virtually every plant that I know. The natural world has few absolutes.

The lanky stems of 'Suzy' I have partially hidden by planting the shorter-stemmed snowdrops in front of them. By the time 'Suzy' is in flower, the snowdrops are in seed, but their thickly clustered leaves create a deep green foreground. This is what I meant by "faced with" in the same way that I "face" pepper plants "with" lettuce plants (face: to cover the front or surface of — *Webster's*).

Fragrance:

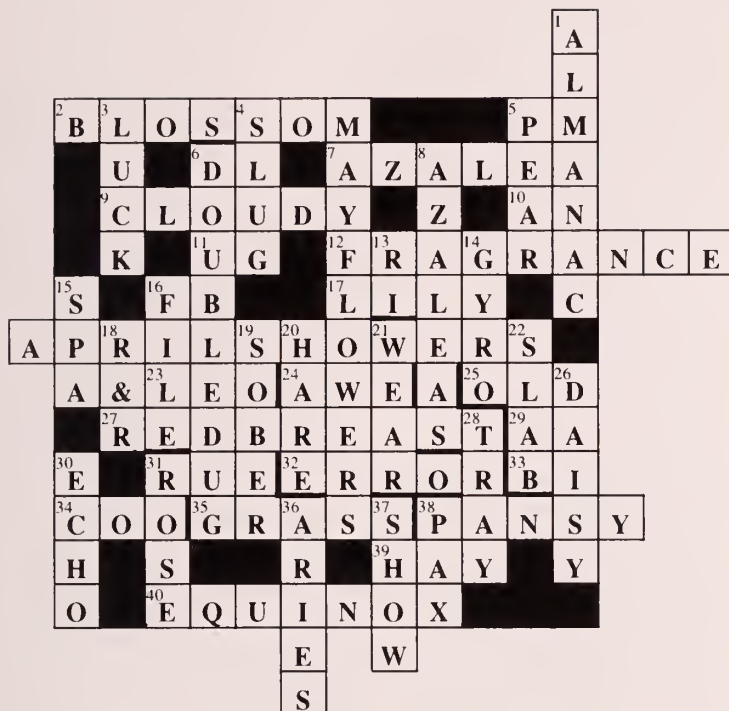
That one readers finds one variety fragrant and another does not supports my statement that the experience of fragrance is a personal one. As I mentioned, Gertrude Jekyll (*Wood and Garden*, Longmans Green & Co., 1904) described daffodils as rank. Toviah Martin (*The Essence of Paradise*, Little Brown & Co., 1991) describes "Narcissus's exuberant olfactory assault" as "effluvium" that sends "friends and family gravitating toward other sections of the house."

In late winter and early spring, I am more likely to cut flowers and bring them inside than to stand in a field waiting to be overwhelmed. The fragrance of cut 'Thalia' or 'Petrel' (both *Triandrus* hybrids) in a closed room at this time of year is, indeed, quite pleasant to me. The chart that appeared with my article makes particular note of the degree and type of scent for many varieties. Those whose olfactory sense is not as keen as others may do well to ignore those listed as only lightly scented.

The Purest:

Call me old-fashioned, but I have always felt that naturally occurring varieties are purer than cultivated ones, and both are purer than the varieties, hybrids, and intergeneric crosses that humans have created. In this regard, the naturalist in me says that true species are the "purest." To many horticulturists, this may seem unfounded, even heretical. But that, to be sure, is a topic for a future article.

MARCH KEY
to Crossword Puzzle on p. 28



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19106. ATTN: *GREEN SCENE INDEX*. Please
make checks payable to The Pennsylvania
Horticultural Society.

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Rosa 'Baby Faurax' fills a foreground position like a perennial drift, surrounded by *Allium giganteum*, *Lythrum salicaria* 'Modern's Glow,' *Digitalis purpurea alba*, and *Scabiosa* 'Butterfly Blue' with *Rosa* 'The Fairy.' See page 9.
photo by Judith C. McKeon





GREEN SCENE

THE PENNSYLVANIA HORTICULTURAL SOCIETY • May/June 1996 \$2.75



***The Green
Queen
Adelma Grenier
Simmons
of Caprilands
Herb Farm
See page 3.***



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Front cover: Adelma Grenier Simmons, author, herbal historian and owner of Caprilands Herb Farm, wears an herbal crown featuring mugwort and fern to celebrate the midsummer festival. Photo by Randa Bishop



Grow with us.

in this issue

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CORRECTION: In the March issue, Plant Societies' Special Meetings and Sales 1996 page, The Philadelphia Rose Society 50th Rose Show: change date to June 2, roses entered, 7-10:30am. Location and contact correct as printed.

Jean Byrne, Editor

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the green scene / may 1996



THE GREEN QUEEN



by Eliot Tozer

Adelma Grenier Simmons's domain, Caprilands Herb Farm, has inspired generations of gardeners. Simmons gardens by the book — her own — all 52 of them.

She was late for our appointment, but unapologetic. She swept down past the cook's garden and the book shop, attired as always in a full-length gown and matching cape. On her head was a maroon juliet cap, custom-made; at her throat, a gold necklace with Malaysian sunburst pendant. She was carrying a yard-tall glass of ale.

"Don't say I look like Margaret Mead," she greeted me. "She wasn't attractive at all."

This is Adelma Grenier Simmons, woman of uncertain age — some say 90, some say 91 — world-class expert on herbs and their uses, raconteur par excellence, author of 52 books, and brand-new bride, unblushing division.

I said, "You look marvelous," and she said, "I do, and I am."

We sat down on a bench overlooking the herb gardens and she began, "The question I'm most often asked is, 'How did you start?'"

She raised the glass to her lips, drank deeply, and said, "In 1929, I was a stylist for several department stores in Massachusetts, specializing in silverware and draperies, and my first husband, long since departed, and I decided we needed a change so we bought this farm.

"The locals laughed at us. The land was rocky, the soil worn out. They said you couldn't keep a goat here, so we bought 50 of them." She turned to see whether I appreciated her spirit. "We named it Caprilands Herb Farm. *Caper* is Latin for goat."

Caprilands in Coventry, Connecticut, which

was to become a mecca for herb lovers and a showplace for the extraordinary talents of Adelma Grenier Simmons, began as a row of perennials, delphinium and such, near the 18th-century farmhouse, and, of course, herbs in the kitchen garden. Today there are 31 gardens, four shops, a greenhouse, a barn for lectures as well as the farmhouse where Mrs. Simmons serves lunch and high tea with aristocratic flair to 120 guests as a time.

"Right away, we had a seven-year drought," she went on, "and only the herbs survived. I said to myself, 'I've been spoken to,' and now we grow hundreds of varieties of herbs, serve several different kinds at our luncheons, and sell seeds and seedlings, potpourri, and wreaths." She paused. "Herbs are magic



THE GREEN QUEEN



because they touch your life at so many points."

As soon as you arrive, you enter the world according to Simmons. The air is heavy with the fragrance of potpourri made from roses, scented geraniums, lavender and lemon verbena. There are always huge bowls of it in the shops.

At first, your eye is caught by the unexpected: a Swedish may pole with a cross on top, a garden of old roses, a dovecote of fan-tailed pigeons, and beyond, beehives. Then it settles on the gardens and the command post, the Book Shop.

The most imposing feature in the latter is a chair with pretensions to thronehood. Here Mrs. Simmons sits from 10:00 am to 4:00 pm every day, autographing books in a beautifully clear and flowing hand and dispensing advice.

An elderly woman, rather shy, approaches and says she has trouble growing lemon verbena, and Mrs. Simmons, warm and effusive, says, "Many people do. It's one of the most misunderstood plants in the world. People plant it and it grows large and then someone tells them they have to take it in for the winter. It's hardy only to Zone 8.

"So they put it in a pot and haul it in, and the leaves drop. Terrible. Friends ask, 'What is that?' and the owner throws it out.

"Don't. I learned when I went to Guatemala, where it's native and grows at 5,000 ft. above sea level, that you can save it if you water it sparingly until late winter, then water normally. It will bloom in June."

As the grateful guest departs, Mrs. Simmons calls out, "We use it as one of the ingredients in Caprilands Tea. You can buy some over at that counter."

Interspersed among the buildings are the gardens, all small, most about 20 ft. x 20 ft., the largest, 20 ft. x 30 ft. "A young girl came up to me one day — I don't really like women much, you know — and said, 'Why did you chop up the space so?' and I told her that every one of the gardens has a theme: poetry, fragrance, instruction, astrology. I've studied history and art all my life, and I want to be known first as an educator."

An educator with a flair, as it turns out. Many years ago, when Mrs. Simmons and her first husband opened the farm to the public, she planted artemisia along the foundation of the house and was dismayed



Capriland's staff members tend the Scented Geranium section of the large Identification Garden. Here plants are grouped by family and labeled so visitors can learn and identify their favorite plants from Capriland's many other show gardens.



Seated in her antique settee, in the bookshop at Caprilands, author Adelma Grenier Simmons greets and gracefully autographs her 30 available titles of her own books for visitors to Caprilands.

at how scruffy it looked against the white clapboard. She thought it should be painted a dark color and when the staff disagreed with her, she hauled out a stepladder and tossed buckets of dark red paint on one side. Then, having gotten everyone's attention, she ordered painters to paint the entire house red and cover it with a coat of black. Now, she says, the house looks like a 1784 farmhouse should look, dark and weathered.

It looks so common people are always stopping by and saying, "Long ago, my grandfather lived here."

We rose. "I agonized over the name for the place and thought briefly about calling it Herbs on the Rocks, but that might have been misleading. My husband suggested Bleakness on the Knoll. Caprilands worked, but now we have a flock of Scottish black-faced sheep."

At the Saints Garden, she said, "When we bought the place, this area was covered by an ice house and the decomposing sawdust had robbed the soil of much of its nitrogen and raised the level of acidity. Nothing would grow here. We limed heavily and added nitrogen fertilizer.

"The board fence in the background supports our hop vines. We don't make beer, but I wish we did. Along the base of the fence is rosemary. People think it has some relation to the Virgin Mary, perhaps because of Spanish legend, but actually the word derives from *Rosmarinus*, 'dew of the sea.'

"It was a favorite in monastery gardens and was used as a medicine, a fragrance, and in cooking. It was burned as incense in the time of plague."

All the plants in the Saints Garden are

"Right away we had a seven-year drought," she went on, "and only the herbs survived. I said to myself, 'I've been spoken to,' and now we grow hundreds of varieties and herbs.

symbolic, with white for purity, blue for truth, and yellow for the "sun of righteousness." There are masses of yellow and orange calendulas, once called Mary's Gold; rows of sage, a symbol of immortality; and woodruff, once known as the plant of Whitsunday. Rue is a symbol of virtue and protects against witches.

"In the early days," Mrs. Simmons said, "I used to work in the gardens all day and cook at night, and sometimes I carried a lantern into the dooryard garden to gather herbs. That's how I got my reputation as a witch."

A visitor finished smoking a cigarette and looked desperately for a place to snuff out the butt. Mrs. Simmons snapped, "Don't you dare drop that butt on my property." He ground it out against the sole of his shoe, put it in his pocket and scuttled away.

We walked along the gravel path above the main garden area. Below were the Strawberry, Colonial, Medieval, Silver, Gold, Bride's, Blue, Victorian, and Shakespeare Gardens, each laid out in a minimally formal way. Some boasted a bee skep or sculpture for vertical interest. None was a triumph of design, no sculpture bore the marks of Michelangelo. But all were welcoming.

"I'm not a botanist. I don't know anything about the insides of a plant, and I don't want to know. Ours is not a botanic garden. It's more romantic, a place where you can feel at home. People love Caprilands because the gardens are not intimidating. They say to themselves, 'I could do that!'"

Mrs. Simmons understands. Her attempt to create a Gertrude Jekyll garden, an imposing border alive with drifts of complementary colors, has not done well. "I had planned it to be a morning-noon-night garden, with white and pinky flowers at one end, yellow in the middle for noon, and deep purples at the far end. But the plants did not thrive and the colors didn't work out the way Jekyll's did. I love English gardens."



THE GREEN QUEEN



"In the early days," Mrs. Simmons said, "I used to work in the gardens all day and cook at night, and sometimes I carried a lantern into the dooryard garden to gather herbs. That's how I got my reputation as a witch."

At Caprilands, the year is divided into five seasons: spring, summer, fall, winter, and Christmas. "I just love Christmas!" she said.

Indeed. When she prepared traditional foods for Christmas, crowds of visitors came. Since more is better, she studied Swedish history and laid on a Swedish Christmas celebration on December 13. Swedes came. Then another on St. Nicholas Day, December 6. For Greeks, a festival for St. Barbara on December 3. And, finally, St. Martin's Day, November 11. Seven weeks for Christmas.

For each of the five seasons, the main house is sumptuously decorated with greenery, at Christmastime, holly, bittersweet, pine branches dripping with cones, and, of course, mistletoe. Drying herbs in fragrant splendor hang from the rafters. Ten fully decorated Christmas trees, with cranberries, popcorn, and religious ornaments, grace the rooms.

In spring, the tables are decorated with fresh herbs and the floors are strewn with sweet flag and rose petals.

For most visitors, luncheon and the post-prandial lecture are the highlights of their visits. Mrs. Simmons planned it that way. "I bait my trap with food," she said, "and it works," adding, "Caprilands may be the last place in the world that offers seconds."

At lunch, guests are seated at long tables. As they nibble at canapes, each flavored with herbs, and sip Caprilands' famous May wine — Johnny jump-ups floating in Rhine wine, sweet woodruff, and brandy — waitresses bring out gigantic salad bowls. On the top, in geometrical design, are calendulas, which, according to Mrs. Simmons, drive away the blues if you gaze into their faces.

In quick order, soup, sandwiches, dessert, and Caprilands Tea follow. An herbal orgy.



Above: Christmas, the fifth season at Caprilands, finds the three dining rooms full of elaborate decorations reflecting many traditions and legends borrowed from diverse cultures. **Below:** High tea at Caprilands reflects the season in food and decor.

On the top, in geometrical design, are calendulas, which, according to Mrs. Simmons, drive away the blues if you gaze into their faces.

Mrs. Simmons rings a handbell. "People, let me tell you what you've eaten . . . now that it's too late." She waits. "Be quiet as little mice now. I don't want to repeat this."

Her aim, she says, is to serve as many herbs as practical while creating a tasty meal. The breads, may be cranberry or cheese with dill or banana with coriander, all made in the Caprilands kitchen. "If you'd like recipes, see my books, *A Witch's Brew* and *The Caprilands Kitchen Book*. They're in the Book Shop.

"You also ate creamed lentil soup with lovage, parsley, and pimentos. Dessert was carrot cake with coriander. The tea is our own recipe, and it has a mint base for wisdom, rosemary for memory and for the hair — if you don't have hair, you can wash the dog with it. Thyme is for courage, sage for immortality, and chamomile for calm nerves. If you drink our tea, how can you lose?"

She speaks of sorrel, a peppery salad green, quoting John Evelyn who said, "It imparts a grateful quickness to the rest," and sympathizes with women gardeners, noting that they have to replant sorrel often, not because it doesn't thrive but because their husbands, thinking it a weed, pull it up. "Don't let them out," she says, adding, "If you haven't tasted sorrel soup, you haven't lived." Her recipe calls for French sorrel, garlic, rosemary, and parsley.

The audience in thrall, she muses on herbal legend, her strength and her joy. Alluding to her crown of fern, she says that she collected the fronds after midnight deep in the forest and asserts that if you can find fern seed on such an expedition, you can make yourself invisible. "I'm sure a great many public speakers have wished they had some." Fern seed, of course, is microscopic spores.

"We sell mugwort, you know. The Chinese use it in medicine. I don't know how to use it in medicine, so we use it in



At day's end Adelma Grenier Simmons strolls through her gardens, reflects on all she has created and ponders her future plans.

magic.

"Make a wreath of mugwort and singe it in a fire on Midsummer's Eve. As it burns, says, 'With this fire I burn away all evil,' and evil will depart. Then you're ready for next year's evil."

She pauses. "One of our guests came to me a couple of years ago and said, 'You can have your old wreath. I never had such bad luck in my entire life'."

When the laughter subsides, she goes on, "We don't do common things like listen to the radio for our weather forecasts. We use the scarlet pimpernel, sometimes called 'The poor man's weather glass.' If the blossoms are open, you'll have a nice day; if they're closed, it will rain. If both, you might as well have listened to the radio." The world's best comedians would love to have such an appreciative audience.

Asked why so many people come to visit her herb farm, she replied, "Two things. They come to get close to the land, to be at one with the soil. And they want information. Almost every guest comes specifically to hear my lectures."

Growing solemn, she said, "You know, some people come to me at the end of their visit, weeping. They say they've just been through a dreadful time at home and they needed the quiet of the gardens."

Asked what pleases her most, now that the farm welcomes more than 50,000 visitors a year, she said, "The expanse of it. I like to think that Caprilands embraces many facets of culture, art and history as well as gardening. It's a fantasy where magic and legend and truth come together.

"The best time to visit is Sunday morning," she went on. "It's quiet then. Not many people until 11:00 am. If you're like most people, you'll want to buy seeds or

seedlings, but I suggest you buy a book or two and do some serious reading. Then come back."

Almost everyone does.

To Visit Caprilands

Caprilands Herb Farm grounds and shops are open year-round daily 9:00 am to 5:00 pm except Easter, Thanksgiving, and Christmas. There is no admission charge. Lecture-luncheons are given April to mid-December; reservations and a deposit required.

To Get There

Coventry is about 25 miles east of Hartford. Caprilands is at 534 Silver St., just south of Rte. 44. Tel. (203) 742-7244.

At the Philadelphia Flower Show

Caprilands Herb Farm has delighted Philadelphia Flower Show visitors for years with their Marketplace herbs and herbal products booth.

Look for them at the 1997 Show at the Pennsylvania Convention Center, March 2-7, 1997.

Eliot Tozer grows four kinds of basil, sage, rosemary, thyme, and more mint than he knows what to do with. He has been a garden writer for 20 years and last year won a Quill and Trowel Award for excellence in writing from the Garden Writers Association of America. During the 1950s, he produced science programs for PBS. In what may be the biggest mistake of his life, he recently accepted the position of deputy supervisor of Orangetown, N.Y.

photo by L. Wilbur Zimmerman

'Shenandoah,' a pink heirloom tomato of Mennonite origins; Weaver calls 'Aunt Ruby's German Green' "a backyard mongrel of uncertain parentage."

William Woys Weaver

Rescues, Preserves and Grows Heirloom Vegetable Seeds

 by Adam Levine

photo by Jerry Orabona

8



Author and heritage plant grower William Woys Weaver's latest book *Epicure with Hoe* will be out early in 1997. His *Pennsylvania Dutch Cooking*, published in 1993, won the prestigious Julia Child award. Several of his books are available to members through the Pennsylvania Horticultural Society library.

Last year food historian William Woys Weaver harvested nearly 250 varieties of organic heirloom vegetables from the gardens at his Devon, Pa., home. An avid seed saver, he has collected close to 2,000 varieties of vegetable seeds, some of which he offers through the Seed Savers Exchange, the largest of a number of grassroots organizations dedicated to saving old-time food crops from extinction. His forthcoming book, *Epicure with Hoe**, will discuss over 500 different heirloom vegetables, all of which he has grown himself.

As a teenager in 1963, Weaver was first exposed to heirlooms after rescuing his late grandfather's seed collection from the bottom of an old box freezer. Later, he inherited another large collection of flower and vegetable seeds from an elderly cousin. Many of these seeds were from old, rare varieties, and Weaver, feeling a responsibility for their preservation, has been growing them out ever since.

"I feel like Noah's Ark sometimes," he says, "with all these plants that I'm maintaining."

Weaver's second path into the world of

heirlooms came through writing six books about food history. In the course of kitchen testing old recipes he began to wonder how authentic his ingredients really were.

"I remember a while back, I was doing a reconstruction of an 18th century dinner and found I had no idea what the food was really like," Weaver says. "Are supermarket vegetables really like the carrots of the 1770s, or the lettuces of the 1680s?"

"I realized that recipes in old cookbooks are simply the skeleton, the dry bones," he says. "Growing the old varieties of vegetables — that's the meat, that putting it together. You need the two."

What is an heirloom?

Simply defining what is and is not an "heirloom" vegetable is a question open to interpretation. Weaver said he knows gardeners who consider anything older than 1950, no matter what its origins, an heirloom. At the other extreme, some people eliminate commercial seed varieties from consideration, no matter how old they are. These heirloom "purists" insist that only plants passed down from generation to generation are true heirlooms.

Benjamin Watson, author of *Taylor's Guide to Heirloom Vegetables*, offers the following three-fold definition:

*To be published by Henry Holt Co., N.Y., in early '97.



- First, an heirloom must be a standard or open-pollinated plant able to reproduce itself true to type from seed, unlike most modern F1 hybrid vegetables, whose seed is either sterile or reverts to one of its parent plants.

- Second, in Watson's view, an heirloom must have been in cultivation more than 50 years ago. Weaver, in his book, will extend that time frame and deal mainly with vegetables grown before 1900.

- Finally, Watson says an heirloom must have a history, as a variety brought to America by immigrants, or saved and improved by a single family or by a religious group such as the Amish, or as a staple or ceremonial crop that native peoples have preserved, or simply as a variety that has become well suited to a particular region.

In his book, Weaver will be discussing mainly the English kitchen garden as it was adapted in the United States. "This means I can deal more or less with the better-documented, Western varieties," he says. "However, even those are confusing when you get into the histories of the plants. I've discovered a great deal of misinformation floating around. We have these mythologies connected with many heirloom plants, and I'm trying to peel them away."

As an example, Weaver says that the 'Brandywine' tomato — which both the Seed Savers Exchange and Watson's book call an Amish heirloom from 1885 — was actually introduced in 1889 by Johnson & Stokes, a seed company in Philadelphia.

"Many of these commercial varieties went out into the countryside, country people saved seeds from them, and then they forgot where they came from," Weaver says. Later, such plants might reemerge bearing names connoting more romantic origins, "such as a Hopi Indian Lima Bean or an Amish String Bean or Pawnee Bush Bean," Weaver says.

Such confusion can also occur with much newer commercial varieties. How does a gardener know if the jar of seed inherited from Grandpa, labeled "Big red tomato," is an actual heirloom or simply some commercial variety, perhaps the common 'Big Boy,' whose real name the old man forgot? A person of nostalgic bent might simply lean toward the former, save seed from the plant and offer it through the Seed Savers Exchange under the name 'Grandpa's Big Red.' In this way a new, faux "heirloom" might be born.

Real heirloom or faux, Seed Savers Exchange is interested in preserving all such vegetable seeds. Due to the whims of



Top left: 'Belgian White,' developed in France in the 1830s, is one of Weaver's favorite carrots. Also shown is a 19th century English variety, 'Long Red Surrey.' Top right: Green Glaze' collards (actually an open-headed variety of cabbage) in Weaver's garden. Its shiny leaf makes it resistant to cabbage worms, and plant geneticists are trying to breed this trait into other cabbage varieties. Bottom: This 'Anne Arundel' melon produces large quantities of seed that can remain viable for eight years or more. With varieties that he doesn't like to eat, Weaver grows them out only as often as he needs to keep his seed stock viable.

"To not perpetuate a particular variety, even one that is currently out of fashion, means throwing away irreplaceable genetic material that may be needed in the future to protect our food supply against climate change and global warming, pesticide-resistant bugs, or diseases and challenges as yet unknown to us." Benjamin Watson

the large seed companies, some of the less-popular commercial vegetable varieties are as prone to extinction as any others. Besides this, the act of saving a plant's seeds from year to year, according to Seed Savers co-founder Diane Whealy, can select out certain genetic traits that better adapt the plant to a specific climate or make it more resistant to certain diseases or pests.

None of this can be determined with any certainty without testing the seed's DNA. But since Seed Savers and other similar groups are committed to preserving different genetic varieties of vegetables, they would rather err on the side of caution and assume that each batch of seeds is really different.

"What we do, if it looks like it's close to something else, we grow it out and make a comparison," Whealy says. "But we've never thrown a seed out."

Writes Benjamin Watson: "To not perpetuate a particular variety, even one that is currently out of fashion, means throwing away irreplaceable genetic material that may be needed in the future to protect our food supply against climate change and global warming, pesticide-resistant bugs, or diseases and challenges as yet unknown to us."

As an example of this, Weaver offers the 'Green Glaze' collard (actually an open-headed cabbage), introduced by Philadelphia seedsman David Landreth in 1820.

photos by L. Wilbur Zimmerman



Most of Weaver's vegetables are raised in 21 raised beds, covering about half an acre. He uses a succession planting scheme, growing as many as three or four crops in the same space over the course of the gardening year.

William Woys Weaver's Garden

Most of William Woys Weaver's vegetables are grown in 21 raised beds, each about 16 ft. square, giving him roughly half an acre of gardening space. He uses a succession planting scheme in which as many as three or four different crops might use the same space over the course of the growing season. An organic gardener, he uses nothing stronger than insecticidal soap on any of his plants. To facilitate pollination — important for a seed-saver — Weaver plants in dense blocks rather than rows.

For a gardener just starting to save seeds, he suggests lettuces as an easy plant to start with, since they don't cross-pollinate as easily as other plants. "You only need to separate different lettuces by 15 ft. to be safe," Weaver says. He says he only saves seed from plants that are "the most true-to-type, the most beautiful. I eat the ugly ones."

Weaver records details of his plants — such as bloom time, flower shape

and color, the size and shape of the leaves and fruits — in a collection of notebooks, one for each major category of vegetables. He compares these notes of his vegetable grow-outs to those of previous years, and to historical information about the same varieties, to make sure his seed is growing true to type.

If the plants are not growing true, he may rip them out — "roguing," seed savers call it. Or, if a particular "untrue" plant looks promising, he may grow it, save seed from it, and try to develop it into a new variety. Weaver is working on one such discovery, a white tomato with a pink "tummy" he has tentatively named 'Beauty of Devon.' This year he is offering seed through Seed Savers Exchange for another tomato, 'Roughwood Golden Plum.' A cross between the yellow 'Brandywine' and a red plum, 'San Marzano,' this tomato took him 10 years to develop.

—Adam Levine

This plant, which Weaver grew last summer, has never been very popular with gardeners. But it has an unusual waxy leaf surface that makes it unpalatable to cab-

bage worms, which has lately made it popular with plant breeders, who are working to incorporate this trait into commercial cabbages.



EXTINCTION IS FOREVER

Why Heirloom Seeds Are Important



When walking with Bill Weaver through his garden of antique plants, I have a feeling of time warp. Bill tells me tales of how in Rome, 201 B.C., Cato described several kinds of kale and cabbages that look as familiar as those we are eating 2,000 years later. He tells how the Roman legions, in their campaigns to conquer Northern Europe, carried their own beets to feed their horses because beets traveled well. A little further on he points out at our feet a lettuce, with tongue-shaped leaves, which is the same as that depicted on the walls of the Pharaohs' tombs. Bill Weaver is an inspired storyteller about the ancient lineage of some of his heirlooms.

For example, we consider the edible podded peas introduced with such fanfare two decades ago to be modern; they were listed in Vilmorin-Andrieux's 1885 edition of *The Vegetable Garden*.

As a newly formed nation, we are a meld of immigrants representing most of the countries of Europe with a smattering of those from elsewhere. Most of these immigrants brought seeds of plants they were accustomed to growing, which yielded a cornucopia of varieties for us, so well illustrated in Weaver's garden.

The introduction of European plants to the Western World began with Columbus's second voyage. James E. Reveal in his book *Gentle Conquest* (Starwood Publishing Co., Washington, D.C., 1992), points out that Gonzales Fernandez de Oviedo in his *Natural History of the New World* (1526) made a prescient observation: the European settlers in relying on seeds they brought with them were making a mistake not learning about the indigenous plants. The exotics often choked out much of the native flora. We have many weeds that are plants native to European conditions, which did not have the same restraints here to contain them. De Oviedo somehow sensed the dangers in allowing so many plants to be eliminated rather than promoting biodiversity.

Fortunately some observant botanists collected and shipped many valuable plants back to Europe thus enriching and enlarging their own flora. One example of this was the introduction of

foods from the Western Hemisphere that now comprise two of the world's four food staples. Of those four — wheat, rice, potatoes and maize — the latter two were unknown to the rest of the world in pre-Columbian times.

At the time no one realized that there were 200 varieties of potatoes; they imported and grew the first that came to hand. Huge plantings, particularly in Ireland, produced a monoculture that succumbed to wholesale destruction, when attacked by blight in the winter of 1845-46 and beyond. The resulting starvation caused the death of more than a million people. In 1970 an incident of lesser magnitude occurred in our own South when 80% of the corn grown there was lost to blight because of the concentration of one variety.

A 1976 Conference on Threatened and Endangered Species of Plants in the Americas, held at The New York Botanical Garden, was attended by 169 delegates from 14 American countries. From the 49 papers presented there, and from discussions came this consensus: too few available food species are being cultivated and too few varieties of even those are being utilized.

At that time estimates showed that at least 60 million American families grow a portion of their food in individual gardens. The Conference posited that this lack of biodiversity offered a potential for disaster. Adam Levine points this up clearly in this article. His story about William Woys Weaver's enterprise in growing on these hundreds of scarce old seed varieties to prove their authenticity and observe their cultural requirements and to tell the story in his book *Epicure with Hoe* is an extraordinary project. Besides being a hands-on treatise about "Heirloom Seeds" there is much more to it than a nostalgic step back in time. It is a serious study that points up the increasing significance of biodiversity to the problems of feeding a burgeoning world population.

—L. Wilbur Zimmerman

Photographer/writer Wilbur Zimmerman photographed the heirloom garden for William W. Weaver's forthcoming book *Epicure with Hoe* due out in early '97. Wilbur is a frequent *Green Scene* contributor.



Two radishes: 'Philadelphia White Box,' a mild radish used in making white sauces, and 'China Rose,' both from the 19th century.

Do they taste good?

Beyond genetics, the growing popularity of heirloom vegetables has a lot to do with their flavor, which in many cases is better and more varied than that of readily available commercial varieties.

For example, 'Black Krim' is one of the ugliest heirloom tomatoes Weaver grew last summer. Its brownish-purple skin and reddish-brown flesh would never pass muster in a supermarket display, compared to the uniformly round and red product that consumers have come to expect. It doesn't look right, by modern standards. It looks unripe, rotten, as if something is wrong.

But if a diner can get by the looks, perhaps by eating this tomato with one's eyes closed, 'Black Krim' has a wonderful taste, what Watson describes as "meaty, salty and smoky."

The standard for tomato taste, by many accounts, is the 'Brandywine.' "It's sort of sweet, there's a sweetness to it," Weaver says. "It's that 'Oh, I've been looking for that kind of taste!' reaction. The first time a person eats a really good 'Brandywine,' you can see it right in their eyes, they're really surprised."

Weaver also likes 'Aunt Ruby's German Green' tomato, "which doesn't look ripe until you touch it, and then it's got this almost 'Brandywine' taste." 'Powers Heirloom' is another of his favorites, a parchment-skinned plum tomato that he says makes spectacular soups and sauces.



photo by L. Wilbur Zimmerman

Weaver enjoys unusual vegetables, like Chinese wolfberry (*Lycium chinense*), a member of the Solonaceae family. It tastes like a cross between a dried cranberry and a dried tomato, and its leaves can be used to make a tea.

Other heirloom vegetables Weaver singled out include a Savoy cabbage from the 1890s, 'January King,' which he enjoys as much for the ornamental value of its crinkly blue-green leaves as for its taste. He has a soft spot in his heart for the 'Musselburgh' leek because his great-grandmother grew them for sale in Philadelphia markets. He loves carrots, and the crisp and crunchy 'Belgian White,' developed in France in the 1830s, is one of his favorites.

Among radishes, he likes 'Philadelphia White Box,' a mild 19th century variety once used in making white sauces, and an unusual one called 'Rat's Tail.' Instead of an edible root, this radish produces a large crop of spicy purple seed pods, up to a foot long, that he says are delicious in salads.

Among his peppers, Weaver singled out the unusual 'Fish Pepper,' a white variety with green stripes. This pepper is among a number that Weaver's grandfather was given by Horace Pippin, the well-known African-American artist. It was used by 19th century African-American chefs in Philadelphia and Baltimore in a variety of seafood dishes.

He also grows more obscure vegetables, like shallot cress (*Lepidium* spp.), a member of the mustard family, which has a taste reminiscent of shallots and stays green through the winter. The Chinese wolfberry

(*Lycium chinense*) tastes like a cross between a dried tomato and a dried cranberry, and its leaves can be used to make a tea.

"I like to play with these off-the-wall vegetables," Weaver says. "Some of them have wonderful tastes, they're just not discovered yet. It'll just take a couple of chefs to find them and the next thing you know, they'll be in *The New York Times*."

To Weaver, that is the point of growing and writing about heirloom varieties: to revive interest in them, to bring them back into popular commerce. In *Epicure with Hoe*, he will not only discuss how to cultivate these plants and save their seed, but will include information and recipes so readers can cook with them.

"There are people who treat heirlooms as shrines, and I think we can't do that," Weaver says. "They have to be part of our lives, we have to eat them every day. Then they'll be saved. Otherwise, if they just become museum food, then they're artificial. They're not part of the culture anymore. They're dead, they're like mummies."



Adam Levine writes and gardens in Rose Valley, Pa. He works part-time for several Philadelphia-area gardeners, including William Woys Weaver, and is a member of the Philadelphia Green Advisory Board.

Sources

For Seeds:

Seed Savers Exchange
3076 North Winn Road
Decorah, Iowa 52101
Membership: \$25 a year

This year SSE will offer 18,000 seed varieties from its 9,000 members, including 169 vegetables from William Woys Weaver. Though SSE does sell a few varieties itself, most seed is purchased for about \$2 a pack directly from members, who list their offerings in the organization's annual yearbook. An affiliated organization is the Flower and Herb Exchange, which publishes its own yearbook; annual membership is \$7 (same address as above).

Many small regional seed companies also specialize in heirloom vegetable varieties, including:

Johnny's Selected Seeds
Foss Hill Road
Albion, ME 04910
(207) 437-4301
Catalog free

The Pepper Gal
P.O. Box 23006
Ft. Lauderdale, FL 33307
(305) 537-5540
Catalog for SASE

Plants of the Southwest
Agua Fria, Rte. 6, Box 11A
Santa Fe, NM 87501
Catalog \$3.50

Shepherd's Garden Seeds
30 Irene Street
Torrington, CT 06790
(860) 482-3638
Catalog free

Vermont Bean Seed Company
Garden Lane
Fair Haven, VT 05743
Catalog free

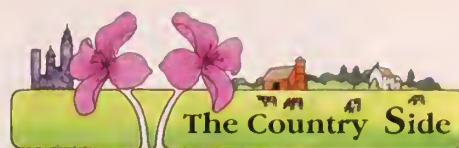
For Further Reading:

William Woys Weaver's book, *Epicure with Hoe* (Henry Holt & Co., N.Y.), will be published in early 1997. Until then, more information about heirlooms can be obtained from:

Taylor's Guide to Heirloom Vegetables, Benjamin Watson, Houghton Mifflin Co., Boston and New York, 1996.

Seed to Seed, Suzanne Ashworth, Seed Saver Publication, Decorah, Iowa, 1991.

Both these and other books on heirloom vegetables and seed-saving are available in the PHS Library.



Recycle Buddleia Stems to Stake Perennials ☼ by Richard L. Bitner

Dear City Cousin,

Buddleia is a flowering shrub that no country garden should be without.

It is a large, arching shrub that can reach 6 to 7 ft. and is covered with fragrant flower panicles from early summer until frost. I grow it because it draws wildlife to my garden: its flowers are covered with all the butterflies from three counties. These butterflies add another important element to the country garden. Motion. What delightful companions they are as I go about my gardening chores. Buddleias are easy to grow. It's true they prefer fertile, well-drained soil but they are drought-tolerant once established. The flowers are available in pink, all shades of purple and blue as well as yellow and white. Buddleia flowers do need frequent deadheading to insure a constant succession of flowers (and butterflies). Otherwise the plant is not fussy and requires little attention. **Except** for one annual task: cutting it nearly to the ground in late winter.

There are several other cut-back shrubs I grow in the countryside: *Callicarpa*, *Amsonia* and *Vitex*. Last year's woody stems cut from these shrubs were all tossed on the burn pile. But the spent buddleia stems I recycle. I use them for staking.

Buddleia branches make good stakes because of their growth pattern. The leaves and stems of the buddleia appear opposite one another and each opposite pair is at a 90° angle to the pair below. Botanists call it a decussate arrangement (see illustration #1). This makes the branch sections perfect for use in garden situations where I need twiggy or "pea" type stakes. Twiggy stakes are useful for perennials or annuals that tend to be floppy after rain or that grow in windy or exposed sites. I find buddleia stakes especially useful for coreopsis, lupines, asters, artemisias and almost any daisy-type plant. I place the stakes when the plants are less than half grown (see illustration #2) and by the time the plant

has matured the scaffold is hidden by the foliage (see illustration #3). Since the buddleia branch is often six feet long, I can cut my stakes from the base or tip depending on how sturdy a stake I need. I simply cut any length with my pruning shears and snip off the side branches I don't need after pushing it into the ground. I think the pale tan branches are even less obtrusive than the dark green bamboo stakes and twine so frequently used. Often I use the right-angled stems of several stakes to embrace a plant from the outside to keep it from flopping.

One more suggestion: plant your buddleia on a slope so you can view the pendulous flowers from below. That will also make it possible to take close-up photographs of the butterflies against a blue sky.

Richard L. Bitner reported on slide film in the March issue of *Green Scene*. His country garden is in Lancaster County. He is a physician anesthesiologist and a teaching assistant at Longwood Gardens.

Illustration #1

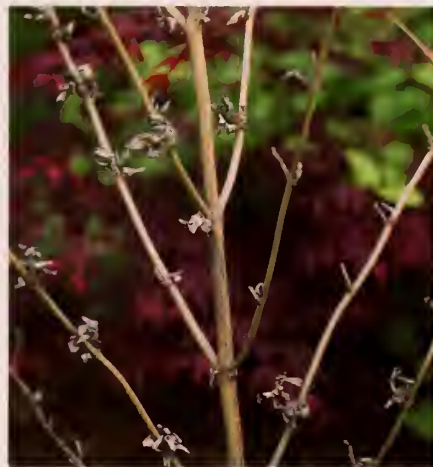


Illustration #2



Illustration #3



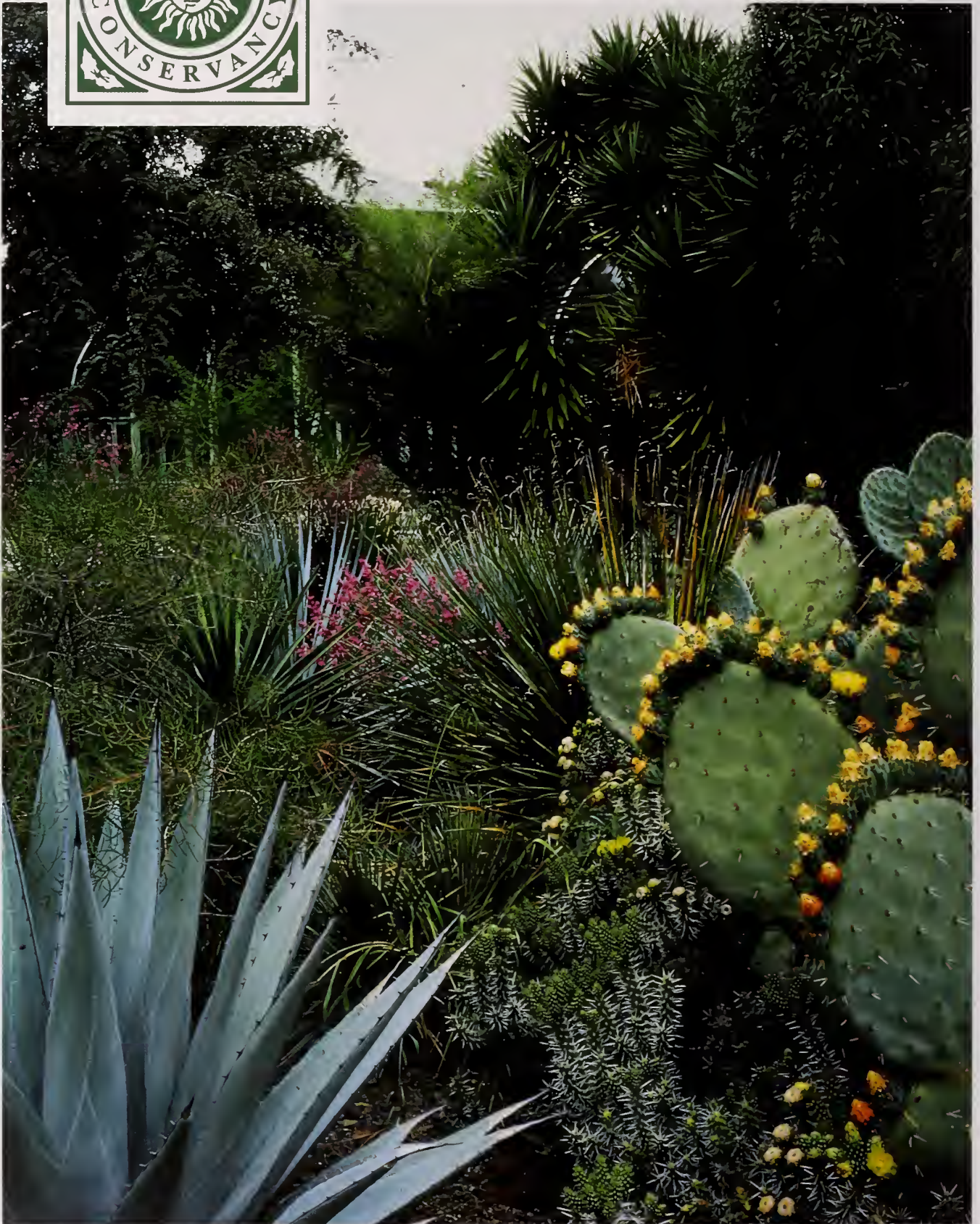
photos by Richard L. Bitner



The Garden Conservancy Opens

by William Guthrie Hengst

photo by Mick Hales



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The Ruth Bancroft Garden, a haven of native California plants near San Francisco, was the Garden Conservancy's first project.

the green scene / may 1996

Up and Preserves America's Great Gardens

Great gardens, unlike great art, are not easily preserved once their owners cease to tend them. Fragile, ever-changing, they quickly fade to weeds and brush — their beauty lost forever and never recaptured.

The Garden Conservancy, a national, non-profit garden organization, based in Cold Spring, New York, was founded in 1989 to preserve exceptional American gardens by facilitating their preservation and availability to the public. Its founder, Frank Cabot, said then, "If a Nature Conservancy can thrive in this country, then why not a garden conservancy?"

In its first seven years, the Conservancy has made an auspicious start toward this challenge, pursuing an ambitious two-pronged program of sponsorship of exceptional gardens and education programs.

What is an "exceptional" garden?

According to Dr. Richard Lighty, Conservancy board member and director of the Mt. Cuba Center for the Study of Piedmont Flora, in Greenville, Delaware, "What makes a garden exceptional is the rarity of the experience — the aesthetic experience and the experience of plantsmanship.

"Most of the really exceptional gardens that have been made in America are no longer here," continues Lighty. "They're just stories now. Ninety-nine percent of the gardens from America's colonial period have disappeared. Many of the wonderful gardens up in Newport, Rhode Island, from the early part of this century are just bones of their original form."

The Garden Conservancy uses four criteria to gauge whether to sponsor a garden: (1) aesthetic or artistic content, (2) horticultural significance, (3) historic/cultural significance, and (4) feasibility of the project. Because the Conservancy wants to preserve gardens throughout the United States, applying one set of standards to all gardens is impossible. An effort is made to evaluate gardens for their regional significance.

Says Lighty, "If you asked somebody to name the top 20 gardens in America, in terms of quality, they would be clustered on the East and West coasts. The East Coast has been settled the longest. There were beautiful gardens here in Colonial times, in Charleston, Philadelphia, the New York area, and Boston, where there are garden traditions. Each generation builds on what the past generation has done. In other words, a garden that might not stand out in



photo by Stephen Morrell

In 1993, the Conservancy took over management and care of the four-acre Humes Japanese Stroll Garden, in Mill Neck, N.Y., from a private foundation that had run the garden as a popular and successful public garden until its endowment ran short, threatening closing. Since 1993, the garden has expanded its visitation opportunities, and a growing corps of volunteers assist two part-time staff members in garden maintenance, visitor services, and special events.

one region might stand out in another, expressing regional design history or using plants that are local to the area."

From the Bancroft Garden to a diversity of projects

The Ruth Bancroft Garden, near San Francisco — a four-acre private haven of cacti, succulents, and native California species — was Frank Cabot's inspiration for founding the Garden Conservancy. For more than 20 years, Ruth Bancroft had developed and diligently maintained her remarkable garden, but lacking both the means and family interest to ensure its preservation when the time would come that she no longer could tend it, the Garden

Conservancy stepped in.

The Conservancy developed a preservation plan that included a conservation easement, which it holds today, to preserve the garden in perpetuity. The Conservancy also set up a local non-profit group to own and manage the garden.

The Conservancy's projects, since Bancroft, have followed different scenarios, including the full management of two gardens — the James Humes Japanese Stroll Garden on Long Island's north shore, and the John Hay Estate in Newbury, New Hampshire — and partnerships in the preservation of half a dozen, or so, other gardens. In its partnership role, the Conservancy usually acts as an advisor to the



photo by Tovah Martin

Open Days Directory Offers 200 Gardens to Visit in Connecticut and New York, with More to Come

Mid-afternoon on a September Saturday, I took off in my car and headed north from Philadelphia. Destination, Norfolk, Connecticut, a small town in the far northwest corner of the state and northernmost garden location in the Garden Conservancy's 1995 *Open Days Directory*.

I drove the 200-plus miles before dark, taking time to stop and shop at White Flower Farm and eat supper in Litchfield, and then continued on to sleep over at a rambling bed and breakfast inn in Norfolk. On Sunday, the last of the Conservancy's 1995 Open Days, I rose early, visited three gardens in Litchfield County, and then blitzed south to see three more in Westchester County around Bedford.

Why drive so far to visit gardens? I wanted country, or what's left of country on the East Coast, where sprawling gardens have succeeded old farms and meadows.

Half the fun of garden visiting is the adventure — the dash and dance of finding them — wandering down unfamiliar country roads. The other half is seeing what other gardeners are doing and gaining new ideas for the garden back home.

Garden visiting, on an open-to-the-public scale, is really quite new in America although it's gone on informally for years among the memberships of local garden clubs and horticultural organizations. If the Garden Conservancy has its way, in the near future garden visiting will become part of the national pastime. Well, maybe not on the same scale as baseball, but perhaps similar to how garden visiting works in the British Isles.

The British Garden Visiting Scheme

The *Open Days Directory* is modeled after the national garden visiting scheme in Great Britain, known as the *Yellow Book*, a guide in England and Wales, sponsored by the National Gardens Scheme Charitable Trust. The *Yellow Book* debuted in 1927 with 600 gardens open to the public and all proceeds going to national and local charities. The 1994 *Yellow Book* listed nearly 3,500 gardens and raised \$2.5 million for charity.

Current annual copies of the *Yellow Book*, as well as *The Gardens of Scotland*, published by Scotland's Garden Scheme, are available to members through PHS's library.

The Open Days Directory

Last year the Garden Conservancy launched the American version of the *Yellow Book*, publishing its first directory which listed 110, eclectic, contemporary gardens — large and small, formal and informal — throughout Connecticut and Westchester, Putnam, and Dutchess counties in New York. Gardens were open on eight Sundays from May through September. Admission to each garden cost \$4, with the proceeds going to the Conservancy, or split between the Conservancy and the host gardener's charity of choice.

The *Open Days Directory* was the inspiration of two avid Westchester County gardeners, Penelope Maynard and Page Dickey, members of the Conservancy's advisory committee and co-chairs of the Open Days' volunteers committee.

Says Maynard, a garden designer and native of Kenya, "I feel very strongly that we've bowed and curtsied to the English and their gardens, and they are fabulous. But, I think we have some equally beautiful gardens here in America. We have to encourage our public and show them that a garden is a personal expression. There's no right or wrong in what a garden should be. This is a way for people to share other peoples' expressions of gardens, whether they're wild meadows or carefully tended formal gardens."

In selecting gardens for the *Directory*, variety is sought. "You don't have to be rich to have a beautiful garden," says Maynard. "And it's important that we have diversity in gardens that we include, a tiny pocket handkerchief vegetable garden thrown in alongside some big estate."

"As far as I know, it's a kind of revolutionary thing," says Antonia Adezio. "The gardens are open one or more days. Some are open three or four times, and owners get to pick the time they feel their garden is best and when they would like to have people come. The public simply follows the directory and goes to see the gardens."

With the boom in gardening in America, the timing of last year's directory was perfect. The reception far surpassed the Conservancy's expectations. The *Directory* sold out early in the season, and nearly 10,000 people passed through the garden gates, which included those of such well-known garden writers as Sara Stein (*Noah's Garden* and *My Weeds*) and Michael Pollan (*Second Nature*).

The 1996 Directory

This year's *Open Days Directory* promises more gardens throughout Connecticut and the three New York counties, and coverage on eastern Long Island (the Hamptons) from April into September. The Long Island gardens will be open on Saturdays while those in the other areas will be open, as last year, on Sundays. A new highlight this year is showcasing some gardens for seasonal plant interest. On September 14 several grass gardens on Long Island will be featured.

This year the Conservancy doubled its printing of the *Directory* — a user-friendly, five-by-eight-inch booklet that contains brief descriptions of each garden, directions, and a handy map of which gardens are open each weekend. Cost of the *Directory* is the same as last year — \$5 for Conservancy members and \$8 retail price, plus \$1.50 for shipping and handling.

Expanding to the rest of America

Although the Conservancy plans to expand the *Open Days Directory* to a national audience, growth will occur as volunteers come forward through the membership and local garden clubs, which do much of the leg work. "One of the hardest things is finding people who will give the time in each of the areas to go out and look at these gardens," says Maynard. "You do have to have scouts."

Recently, Janet Poor, a former vice president of the Garden Club of America, was named national chair of the *Open Days Directory*. Under her leadership the *Directory* will expand in 1997 to include gardens in other parts of the United States.

The Conservancy is hardly proprietary as it spreads into territories where garden visiting schemes already are well established, such as Massachusetts and around Philadelphia. "We have no intention of disrupting those systems," says Maynard. "We would like possibly to list other visiting days' programs in our directory, but we don't want to step on anybody's toes. The purpose is to broaden the number of gardens that we see."

Although the gardens I visited in September were parched by the late summer drought, in spots resembling the aftermath of a fire, my whirlwind dash was worth the effort if for nothing else than its discovery and exchange.

At my first stop, Hillside Gardens, in Norfolk, co-owner, Mary Ann McGourty, told me: "The Garden Conservancy has tapped into the spirit of gardening in the United States. They've encouraged people to open their gardens and share them in a way that most Americans have never done before, either because they didn't think of it or because the vehicle wasn't there to publicize it."

My fondest memory was overhearing a visitor ask another host in Connecticut, "Do you have much trouble with the deer?"

"No," the host replied, "we really don't get the deer in our gardens, like you get in the suburbs further south, because we have lots of woods and meadows around us for the deer to browse."

This year I'll continue my pursuit of America's great living gardens, using the Garden Conservancy's 1996 *Open Days Directory* as my guide.

— William Guthrie Hengst

owner or provides technical assistance.

"Typically, we find gardens that already are in some form of public trust, whether they are owned by government agencies or non-profit organizations that are very much in need of our services," says the Conservancy's executive director, Antonia Adezio. "Often, we find gardens exist as stepchildren to other cultural entities," continues Adezio, "and they are not getting the kind of support and recognition they need to really function. People have become a lot more aware in the past 10 years that an historic house may have an important garden around it that has not gotten the attention that the house has."

"These are the kinds of places that are turning to us in really large numbers, seeking help to find more money to hire staff, restore part of the garden that's been allowed to go, and get people there to see it. What most gardens need, as much as anything else, are money and visibility."

The John Hay Estate

In 1993 the Conservancy contracted with the state of New Hampshire to undertake the restoration planning and management of the historic landscape at "The Fells," the former summer retreat of John Hay, Abraham Lincoln's private secretary and biographer who later served as Secretary of State under Presidents McKinley and Theodore Roosevelt.

Purchased by Hay in the 1880s, the extensive gardens, including a hillside rock garden, rose terrace, a substantial perennial border, and a woodland garden, were developed by his son and daughter-in-law during the first half of the 20th century. Years later, the entire estate — house and designed landscape, as well as surrounding 165-acre natural area overlooking Lake Sunapee — was deeded to the state of New Hampshire.

By 1993, the outlines of the designed landscape still survived, but the more labor-intensive plantings had not. Under combined state and private funds, the Conservancy hired horticultural and administrative staff to oversee the interpretation and rehabilitation of the historic 1930's landscape.

In a short space of time, the Conservancy has successfully energized the restoration of the gardens, bringing promise of their transformation into a significant horticultural and educational resource for all of New England. A crew of more than 50 volunteers works weekly at tasks such as weeding and replanting the extensive perennial beds, which could never have been done with the staff available.

photo by Mick Hales



View of a garden at the John Hay Estate in Lake Sunapee, New Hampshire.

"The scale of volunteerism," according to Antonia Adezio, "is the envy of many established gardens. These people are there for the reason people volunteer in gardens everywhere, they want to learn. Our director at the Hay Estate, Bill Noble, is able to incorporate learning into the volunteering."

The other half of the success story is fund raising. The Conservancy started with a commitment from the state of New Hampshire of \$35,000, which has continued. After contributing some money of its own, the Conservancy has raised money from other sources, leveraging the state's money at a ratio of 2 to 1.

The Hermitage

A less hands-on example of the Conservancy's work is the Hermitage, in Ho-Ho-Kus, in Bergen County, New Jersey, the former estate of the Rosencrantz family, which is now owned by the state of New Jersey and operated by the Friends of the Hermitage. Here the Conservancy was called upon to advise how to go about recreating the late-19th Century gardens that once graced the Hermitage. The task was compounded because over time the trees had been clearcut, leaving the site barren.

Before any authentic recreation of the gardens could begin, meticulous, archival research was needed. The Conservancy suggested consulting the Olmsted Center for Landscape Preservation, in Brookline, Massachusetts, to identify the original trees and shrubs from photos of the Hermitage dating back to 1890. After lengthy research, a planting plan was drawn up and work begun in 1995 to install the structure of the former garden.

"Here, our contribution," says Antonia Adezio, "was to point out resources that were available that the Friends organization wasn't aware of and techniques that could be brought to bear."

How the Conservancy operates

Adezio, the Conservancy's first and only director, served as the director of development at Wave Hill before Frank Cabot brought her to the Conservancy. Says Adezio, "A lot of what we do is find money. We don't give grants, *per se*, because we don't have the resources, but we do spend a lot of time trying to develop new funding sources for the gardens we assist."

The Conservancy has an annual operating budget of around \$800,000, covering the central office and field staff at the Hay Estate and the Humes Garden. Central office, besides Adezio includes a projects manager, John Fitzpatrick; a trained horticulturist and founder of the Center for Historic Plants at Monticello, in Charlottesville, Virginia; and a support staff of six that specialize in event planning, membership, and public information.

Approximately 85% of the Garden Conservancy's income comes from individual contributions and a membership of 2,500. Says Adezio, "We are remarkably fortunate in the support we get from our members, with a membership that starts at \$35. We have quite a number of generous members through our Society of Fellows that was started three years ago and promotes annual giving of \$1,000 or more."

Gardens come to the attention of the Conservancy several ways. An advisory committee of 65 members across the country often suggests candidates for Con-

servancy assistance. "Part of their job," says Adezio, "is to keep their eyes and ears open about gardens in their state or region that might be appropriate for the Garden Conservancy to get involved in. Members also suggest gardens. Our members are very active with us. They're very aware and committed to the idea of preserving gardens and having gardens open."

If money and visibility are crucial to the gardens that the Conservancy sponsors, equally important is local support. Says Adezio, "A local friends' group usually is needed to provide an ongoing commitment to how the garden looks and is managed. You need people to take care of the garden. You need wonderful gardeners, and you also need a group that's willing to represent the garden's interest in the community."

The Garden Conservancy makes no claim that what it does is unique. In fact, Antonia Adezio is quick to credit other groups in the United States, like the Garden Club of Virginia and the National Trust for Historic Preservation, that have successfully preserved historic gardens. "We've also learned a lot from preservation techniques that have been used to preserve buildings and open land in this country," she says.

Education — Opening America's gardens to the public

The other half of what the Garden Conservancy does is education. "The only reason to preserve these gardens," says Adezio, "is to have the public come. That's what we mean by preserving for the public, that there be access and that there be opportunities for people to see them, enjoy them, and learn from them. Gardens standing on their own without that don't mean anything."

On the same theme, Richard Lighty adds, "When people start to see examples of exceptional gardens, the general quality of gardening in the country is raised."

"The bottom line," adds Adezio, "is we think gardens are a good thing, and our ultimate goal is we'd like to have more people doing wonderful things in their own gardens."

The Garden Conservancy's educational programs include a mix of venues — special classes, symposiums, a newsletter, and garden visits. If most of America's exceptional old gardens are extinct, what better way to educate the American public than by creating access to private gardens tended by today's garden enthusiasts.

Last year the Conservancy's garden visiting program took a big leap forward with the launching of its *Open Days Directory*, which included 110 gardens in Con-

On the Garden Path in the Delaware Valley

Visiting gardens has long been a passion of gardeners in the Delaware Valley, as much a symbol of the growing season as the rake or trowel. Garden visits provide inspiration, a learning experience, or something as simple as a chance to connect with nature or to absorb some of the serenity and beauty a park bench in the sun can provide.

Whatever the reasons, residents and visitors to our region are blessed with many public and private gardens to enjoy, and plant-loving organizations and societies make it easy to plan a season of formal and informal outings for family and friends.

As the temperature climbs, the Pennsylvania Horticultural Society members' programs move outdoors for workshops, one-day field trips, garden tours, and even extended tours to other parts of the country or the world. The 1996 calendar lists field trips to private and public gardens in Georgetown, York, Lancaster, and New York with guided tours of area gardens such as the Chanticleer Foundation, Morris Arboretum of the University of Pennsylvania, Scott Arboretum, Tyler Arboretum, Jenkins Arboretum, and Mt. Cuba Center for the Study of Piedmont Flora in Delaware. Extended tours include a four-day trip to Virginia in late April and a three-week trip to Australia and New Zealand in October–November. Descriptions of events are detailed each month in the *PHS News*. Itineraries for extended trips are available upon request.

Another enjoyable way to visit private gardens is through the PHS Members' Spring Garden Visits, a series of three garden tours where generous garden owners open their gardens to other members on Sunday afternoons in May and June. For a nominal fee, participants receive travel directions and garden descriptions to set their own pace and their own itinerary. Dates and locations for 1996: May 5, Main Line; May 19, Gladwyne; June 9, Glenmoore.

If this list has only whetted your appetite, investigate the endless number of guided and unguided tours available at arboreta and

public gardens in the region. Specialized horticultural societies such as the North American Rock Garden Society, the Hardy Plant Society, and many others plan tours of private gardens for their members. Some garden clubs have their own tours as well. The PHS Library, which has extensive information about gardens, has books that will help you to plan your destinations, near or far.

As you arrange a busy schedule of garden visits, don't overlook Fairmount Park, the Zoological Society of Philadelphia, and the wonderful historic homes and gardens in the City, Germantown, and suburban areas in Pennsylvania, New Jersey, Delaware, and Maryland.

Your enjoyment of garden visits does not have to end at the first hard frost. Consider extending the season by revisiting public gardens on a mild day in late fall or winter, the perfect time to appreciate the bones of a garden or magnificent trees in the winter landscape.

Tips for Successful Outings

Plan ahead by slipping sunscreen, notebook and pencil, bug spray, or other needs in your pocket or purse.

To avoid disappointment, always call ahead for visiting hours, fees, picnic facilities, handicap accessibility, and guided tours. Shutter bugs should carry film, batteries, etc.

Few public gardens sell such items. Always wear comfortable shoes and clothing appropriate to the weather. Sore feet/high heels are sure to spoil an otherwise splendid day in the garden.

For Information:

PHS business hours: 9 am – 5 pm, Monday through Friday.

Membership: (215) 624-8265

Field trips and garden visits: (215) 625-8276

Extended trips: (215) 625-8257

PHS Library: (215) 625-8256

PHS web site:

<http://www.libertynet.org/~phs>

Lists of special-interest horticultural groups: *Green Scene*, March issue

necticut and New York. This year's visiting scheme encompasses 150 private gardens and expands to Long Island. The Conservancy plans to continue expanding the *Directory* to cover gardens throughout the United States. (See sidebar story.)

What does the future hold in store for the Garden Conservancy, besides enlarging its garden visiting program? "We're at a point where planning probably is one of our next goals," says Adezio. "So much of what we have done up until now has been on a fairly *ad hoc* basis in response to what people needed. The possibilities of our activities are more or less endless. We have to decide how big this can be and whether the support is there to sustain it."

For More Information About the Conservancy

Write or telephone:

The Garden Conservancy
Box 219
Cold Spring, NY 10516
(914) 265-2029

William Hengst, free-lance writer and gardener, became interested in the work of the Garden Conservancy because of his experience in land planning and open space preservation.



Once *Viola odorata* starts to bloom, it is intense and wears a cap of purple as long as night temperatures don't go much above 50°F.

Fragrant Violets

by Lorraine Kiefer

My quest for the fragrant violet began long ago when I was a high school student. I was fascinated by the references to sweet violets in some of my favorite readings. From the ancient Greeks and Romans (Horace and Virgil), to Mohammed, and the early Christian writers, who referred to the Virgin Mary as the *Violet of Humility*, all boasted of an intimacy with this plant. Shakespeare and his contemporaries, and then the Romantics and Victorians, all sang and wrote of the sweet and fragrant violet. Byron tells of both the color and fragrance: "*The sweetness of the violet's deep blue eyes, Kissed by the breath of heaven, seems color'd by its skies.*"

My disappointment was keen when I crawled about the garden sniffing the lush purple carpets of spring blooms only to find they were not fragrant. Numerous violets grew throughout the many acres of our grounds, so imagine my frustration when not one of the violets had even the slightest hint of fragrance.

Like Quixote, I sought the impossible dream. I began to scour garden books finding scant information about fragrant violet plants.

My first clue for locating the pieces of the violet puzzle was found long ago in the *Fragrant Garden* by Louise Beebe Wilder. When this book was written in 1932 the violets were readily available in garden catalogs and the author wrote

of planting more than 50 on her hillside. But by the time I read the book in the late '60s, I couldn't find a source for them.

More than 10 years later many of my violet questions were answered in Nelson Coon's informative work, *The Complete Book of Violets*. Coon gives an excellent history of this plant, tracing its origins in ancient Greece to the medical journals of Hippocrates in 466 B.C. He lists uses for the blooms and leaves for everything from headaches, stomach complaints, heart problems, nervous disorders, to even cancer. Used in the Middle Ages for a host of ailments, violets were considered a good source for Vitamin A and C. Coon even includes recipes as well as information about how to cultivate these plants.

Finally, I bought my first *Viola odorata* from Logee's Greenhouse (see Source list). Since then I have planted and propagated many of these easy-to-grow plants.

Although much is written about these "European" violets as they are still called, very little of the information can be found in gardening books. All but gone from our landscape for many years, the sweet or fragrant violets had flourished around the turn of the century and early into the 1900s. Most were grown commercially in the area around Rhinebeck, N.Y. A rather detailed history of this era of the violet story is related in Tovah Martin's book, *The Essence of Paradise*.

continued

Fragrant Violets

photos by Joe Kiefer



The author waters the violet in the small greenhouse attached to her house. The greenhouse thermostat is set at 50°, so is fairly cool at night. Consequently, the violets often bloom through most of the winter if they get a rest outdoors for at least a month of "winter temperatures" before they are placed on the benches.



Lorraine Kiefer plants the violets near doors, walks, and driveways where their fragrance will greet family, friends and visitors. (Notice effect of white snowdrops next to the purple.)

She not only tells how, why and when, she also discusses how the fragrance was bred out of the violet by an industry seeking a fatter, fuller, longer-lasting bloom. She tells as well how the Logee family "pulled itself through the depression peddling bunches of fragrant violets door to door."

I talked with Joy Martin [the foremost expert on fragrant violets today; daughter of William David Logee, who founded the greenhouses 104 years ago; and mother-in-law of author Tovah Martin]. Joy told me these violets, so favored by the Victorians, were again becoming popular with the renewed interest in Victorian flowers and decorations. She added a tip about keeping the violet bunches fresher longer: "Violets drink from the blooms as well as from the stems. We always dipped them in water before making bunches."

Joy Martin also told me how they grew the tender Prince of Wales, Parma and a few other fragrant plants that had to be dug in the fall and grown in a cold greenhouse. These were lifted and planted right in the greenhouse benches. Usually they bloomed by Valentine's Day, but were in demand whenever they were available.

Now I happily grow both the *Viola odorata* and *Viola odorata rosea*. They have beautiful rich colors, the first a deep purple, the second a deep pink, and are wonderfully fragrant. Both are hardy to Zone 4, which is quite a bit north of here, and do well in the Delaware Valley. Don't plant them too close to the ordinary wild



The light shade of a birch tree protects the violets from noon-day sun and offers a nice contrast to their delicate bloom. This little plant will spread in a humusy, somewhat moist soil.

violets, lest they mix with them, and gradually lose their fragrance. A plant or two will multiply, soon making a carpet of violet hue.

*A single violet transplant,
The strength, the colour, and the size,
(All which before was poore and scant,)
Redoubles still, and multiplies.*

—John Donne, *The Ecstasy*

Culture

Although violets will do well in almost any soil, most prefer a somewhat moist, but well drained soil in a semi-shaded location. Too much fertilizer will create beautiful foliage, but few flowers. I use a scant dose of Osmocote, a time-release fertilizer on those plants grown in one-gallon pots. The ones in the garden get a spring dose of 10-10-10 when all the other plants do.

Just last spring I found all of the one-gallon pots of *V. odorata* in bloom in our unheated wildflower greenhouse. Since it was almost time to uncover the houses, I ran to the outside and cut a large hole in the opaque poly on the side where the violets were. A burst of the fragrant, warm air enveloped me with an intense spring scent. What a marvelous treat!

Although the best way to grow these violets is in the garden, a pot or two can be grown to bring in for winter. They must be kept in an unheated porch or cold frame until January or February, which insures some dormancy. When it's too warm, the leaves become pale. Unfortunately when the temperatures are above 50°F at night, the violets don't set buds. It is a challenge to

bring a pot or two in and get them to bloom. Success is insured if a very cool, sunny area is available.

My little home greenhouse is a good place to gain several weeks over the pots in the unheated greenhouse we use in the nursery. Although the night temperature is often just a bit above freezing, the sunny days are pleasantly warm, making for excellent conditions for bloom. Brought into the house for a day or so they brighten the winter-worn spirits and delight any company that comes to visit.

When indoors for a few days, *V. odorata* will do best in an east or west window where they get fairly strong light. Open the window just a bit if the sun becomes too warm during the day. Frequent showers of cold water also perks up the plant and encourages it to bloom. They don't like to dry out!

The intense fragrance of the sweet violet can be perceived by the human nose for short periods of time only. When we become satiated, it takes a few minutes until we once again can smell the violet. This fascinated Shakespeare and his characters comment on it in *Twelfth Night*, *Hamlet*, *Henry V*, and many other plays.

If blooms are picked to wear or put in vases, be sure they have enough water. They drink deeply, and also like to be misted. If the stems are placed in tepid water and allowed to drink for several hours, they will last longer when worn. I find that after a few hours at room temperature, the whole glass of violets can be put in a refrigerator to "harden" again for a few hours to finish the conditioning process.

Today it is almost impossible to get them out of season. Unless the florist grows them and is willing to spend the time need to condition and work with these delicate blooms, they might not be found. Like lilies of the valley, we add violets to bouquets in our shop only when they are in bloom.

To me, it wouldn't seem like spring without these scented violets. It's sometimes difficult to take time to smell the flowers, but it's really worth the effort to get down on hands and knees to smell the violets.

Sources for *Viola odorata*

Logee's Greenhouse
141 North Street
Danielson, CT 06239
(203) 774-8038

Triple Oaks Nursery
Attn: Lorraine Kiefer
P.O. Box 385
Franklinville, NJ 08322
(609) 694-4272

Further Reading

The Complete Book of Violets, Nelson Coon, A.S. Barnes and Co., Inc., Cranbury, N.J., 1977.


The Essence of Paradise: Fragrant Plants for Indoor Gardens, Tovah Martin, Little, Brown & Co., N.Y., 1991.

The Fragrant Garden, Louise Beebe Wilder, Macmillan, N.Y., 1932; Dover Publications, Inc., N.Y., 1974. (Reissued under the title *The Fragrant Garden Path* when reprinted in 1974.)

These books available to PHS members through the PHS Library.

Lorraine Kiefer, a lifetime gardener, writes garden columns for five local papers as well as frequent articles for the *Green Scene*. Lorraine wrote a chapter in the Brooklyn Botanical Garden's handbook, *Fragrant Plants*. A frequent lecturer, she has been a speaker at PHS's Philadelphia Flower Show and Harvest Show, where she discusses herbs, fragrant plants, culinary plants, herb vinegars, and at the '96 Show, the fragrant landscape. Together with husband Ted and sons she operates Triple Oaks Nursery in Franklinville, N.J., where she also teaches herb, landscape and flower-arranging courses.

The Native Plant Rescue

 by Jim Duell and Dave Thompson

Six staff members and students travel to the Southern Appalachian Mountains to rescue native plants for Longwood Gardens' Peirce's Woods project.



With the sounds of grapple skidders, chain saws, and huge trees hitting the ground coming from the valley below, Jim Duell snares one of the more than 1,000 snakeroot (*Cimicifuga racemosa*) collected during the two days. More than 10,000 roots, crowns, and stolons of 12 different species of northeastern native plants were bundled and returned for planting in Peirce's Woods at Longwood Gardens.

On a clear and promising September Saturday morning, six Longwood employees and students loaded their gear for an expedition into the southern Appalachian Mountains. Their destination was a small patch of wooded mountainside just east of the North Carolina-Tennessee border. The goal was to spare certain native plants from the impending destruction of an oncoming interstate highway project by digging and transporting them back to Longwood for replanting in the woodland garden in Peirce's Woods.

The journey began at 8:00 am, September 30, with Jeff Lynch, section gardener of Peirce's Woods; Dave Thompson, Continuing Education coordinator; Shannon DeLuca, gardener; Eric Gay and Becky Cutright, Flower Garden interns, and Jim Duell, a professional gardener student. They were loading rain suits, coolers, several nights' necessities, a variety of digging tools, and several bales of burlap into the arborist's covered truck and another Horticulture Department pick-up truck.

Not far into Virginia, the romance of the trip was stirred by the site of the Shenandoah Mountains on the West Virginia skyline. From this point, the rugged rural landscape refreshingly prevailed. Nearer the destination, about 50 miles into Tennessee, the mountains were most dramatic, and the idea of working and exploring in the wilderness revived the group.

Sunday evening the group was introduced to Meredith Clebsch, owner of Native Gardens, a native plant nursery in Greenback, Tennessee, and Martha Webb, Bayley Cook, and Mike Valle, three of Clebsch's employees who assisted in the collection. It was Clebsch who had become aware of the impending interstate high project and who had informed Jeff Lynch, Rick Darke, and Gary Smith during their May 1994 visit to her nursery. Darke, Longwood's curator of Plants; Smith, consulting landscape architect for the Peirce's Woods project; and Lynch, Longwood Nursery section gardener at that time, were investigating potential sources for native plants for Peirce's Woods. Clebsch worked with officials of the North Carolina Department of Transportation to obtain the permits required to enable the group to remove plants from the woodlands.

The scenery on the way to the job site was spectacular. Vistas of the mountain peaks ran fantastic distances in the clear, crisp, autumn atmosphere. The drive each morning and evening took the group along



Jim Duell (left), Meredith Clebsch (with hat), Eric Gay (stooping), Shannon DeLuca (center foreground), and Jeff Lynch (against car). The group sorts and counts plants at the collection base established in a turnaround at the top of a steep, muddy logging trail. Individual diggers lugged heavy burlap bundles to the site for sorting, counting, and rebundling, loaded onto the pickup truck and hauled down the trail to be loaded onto the bigger, enclosed truck. Large sheets of burlap could hold 50 to 100 individual crowns of particular varieties.

the four-lane interstate highway, that sliced through the persistent incline of the mountainsides from Tennessee to the North Carolina border. It not only suggested the course that Route 23 would someday take on its way through the North Carolina mountains to Asheville, it was also visual justification for removing as many plants as possible from the path of this beautifully efficient but destructive highway project.

At the North Carolina border, the interstate narrowed to the original two-lane, passing patchwork tobacco fields. The crew was soon surrounded by magnificent wilderness. A turn onto a dirt road suggested the remoteness of the intended collection site and the heavily eroded road made the driving a suspenseful challenge as the caravan navigated the curves and gullies of the uphill grade with care and measured slowness.

Where the dirt road leveled and emptied into a clearing, the larger covered truck was parked and the day's supplies loaded

onto the pick-up. A second trail, softer, muddier, and in worse condition than the first, led to the final destination. Most of the group went on foot, walking the half-mile up the gullied road as the four-wheel-drive pick-up made itself proud, clambering up the rutted log trail to a small turnaround at the top of the ridge.

After a brief survey of the area, Lynch and Clebsch located, described, and identified the desired plants for the group. With a supply of burlap and digging tools, the 10 individuals spread out, some descending down the mountainside, some working in teams, to begin the two days of collecting.

The forest was thick with moosewood (*Acer pensylvanicum*) and tulip tree (*Liriodendron tulipifera*). Other treasures in abundance included the maple leaf viburnum (*Viburnum acerifolium*), dutchman's pipe (*Aristolchia macrophylla*) and the bizarre-looking beech drops (*Epifagus virginiana*), a flowering plant that is a parasite of beech trees.

As the desired plants were dug from the mountainside, the foliage was cut back and the root crowns placed on sheets of burlap. Once a substantial number of plants had been gathered, they were tightly secured. Depending on the plant, 50 to 100 crowns could be bundled this way. The cumbersome packages were then lugged to the top of the ridge, some with greater effort than others. The bundles were opened and the plants were cleaned, sorted, counted into groups of 100, and wrapped in wet burlap.

During the two days the group managed to dig and collect more than 5,000 christmas fern (*Polystichum acrostichoides*), about 1,000 snakeroot (*Cimicifuga racemosa*), nearly 800 bloodroot (*Sanguinaria canadensis*), and a similar number of wild-ginger (*Asarum canadense*). One of the greatest prizes was a hefty batch of false solomon's-seal (*Smilacina racemosa*), which is difficult to find commercially. After the large bundles of this plant were gathered and sorted, about 1,000 root crowns were

The Native Plant Rescue

photo by Dave Thompson



The group takes a foggy lunch break at the supply trucks parked in a clearing below the logging trails leading to the mountainside collection areas. On the last of two days of collecting everyone was tired and wet but aware that at least three more busy hours of collecting were needed.

Professional Gardener Training Program at Longwood Gardens

The Professional Gardener Training Program is a tuition-free, two-year, hands-on gardening experience combined with practical classroom instruction. It trains individuals to be gardeners eligible for employment in the fields of public and private ornamental horticulture. Students in the program learn to identify, grow, and maintain attractive, healthy plants indoors and out. Participants receive instruction in basic botanical, horticultural, soil, and design principles and are trained to communicate this knowledge.

Every two years, approximately 14 students are selected. Each receives a stipend and is provided with rent-free housing on the grounds of the former estate of industrialist Pierre S. du Pont.

The typical week for a professional gardener trainee consists of 10 hours in the classroom and 25 hours on the job. Classroom time is divided into 40 courses taught by Longwood staff and local experts. A partial list of topics covered in the classroom includes botany, floriculture, integrated pest management, landscape design, and vegetable and fruit culture. On-the-job training consists of rotation through each of the six major indoor and outdoor areas: arboriculture, display, flower garden, groundskeeping, production, and re-

search.

Upon completion of the program, students receive a diploma from Longwood Gardens. Career counseling and assistance in preparing resumes are provided to students. Since the program's beginning in 1970, approximately 90% of all graduates have pursued careers in horticulture, park management, landscape contracting, residential and public garden management, or are self-employed.

Requirements include a high school diploma with standing in the upper half of the graduating class and one year of horticultural work experience. Applications will be available from June through August, 1997, for the new class that will begin in 1998. Open House programs are held during the application period.

Longwood also offers internships for American and international college students, a graduate program in Public Horticulture Administration, and continuing education courses for the public. For further information about any of these programs, call or write:

Education Division
Longwood Gardens
P.O. Box 501
Kennett Square, PA 19348-0501
(610) 388-1000 ext. 524
FAX: (610) 388-2908

ready for planting.

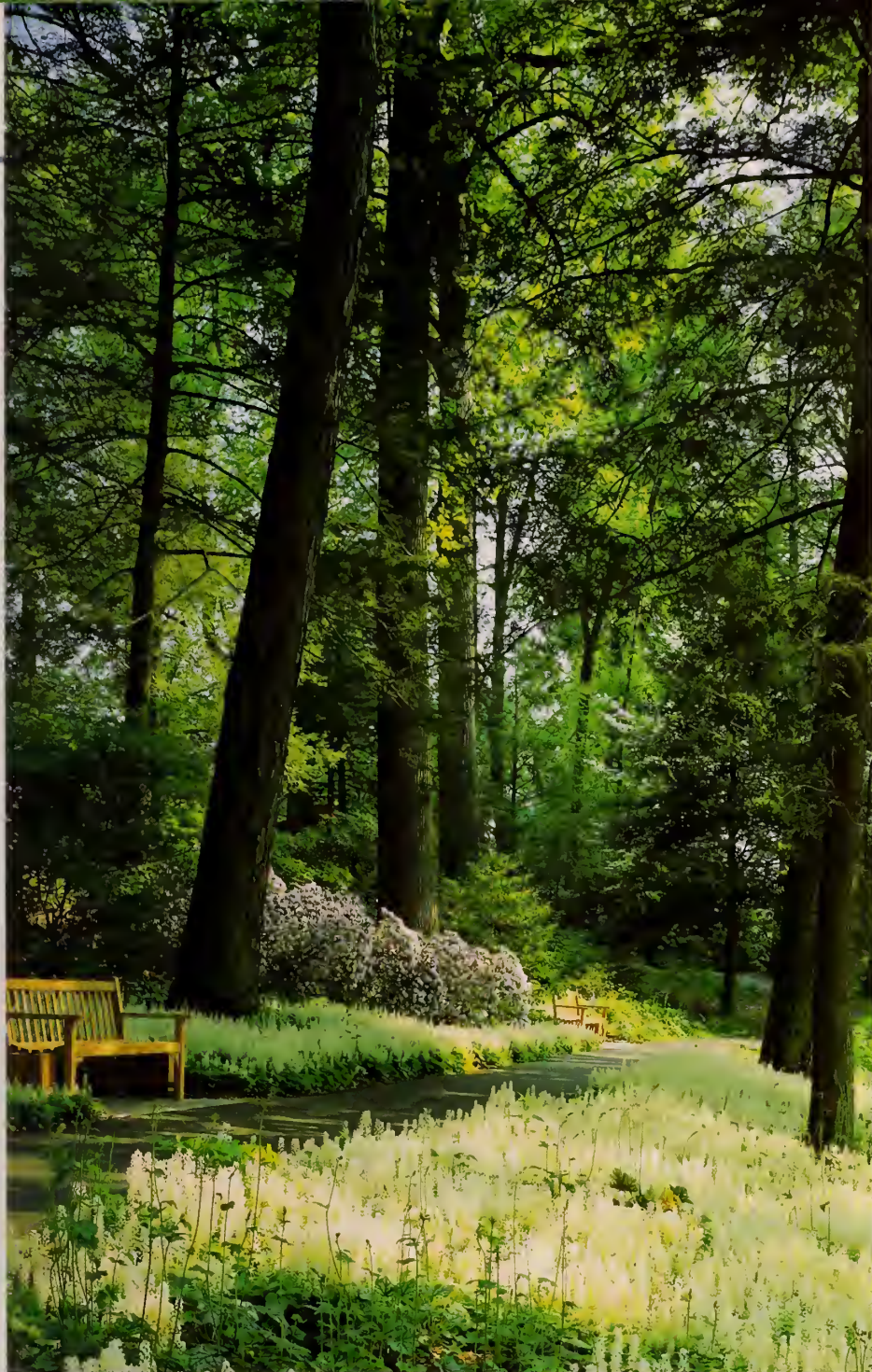
In some cases, plants that were on the Peirce's Woods planting list were available in limited numbers. A few hundred marginal shield fern (*Dryopteris marginalis*), 100 maidenhair fern (*Adiantum pedatum*), several patches of goatsbeard (*Aruncus dioicus*), liver-leaf (*Hepatica acutiloba*), *Trillium* sp., umbrella-leaf (*Diphyllaea cymosa*), and blue cohosh (*Caulophyllum thalictroides*) were also valuable finds. By the end of the first day, the covered truck was two-thirds full. At the motel that night, the plants were watered in their burlap bales in the covered truck.

Back on site the second day the group returned to the same area and began again. By late morning, a steady drizzle aggravated the already poor state of the unsound trail. The crew wisely decided to abandon the site of the first day's effort and relocate from the top of the ridge to an area alongside a more reliable logging road on the other side of the first clearing. Heavy rain clouds obscured the distant vista of the mountain peaks, so beautifully visible on the first day. Instead, a wet fog settled lazily between them.

As the rain persisted so did the crew and their determination paid off as the numbers of plants grew steadily. A thousand more christmas fern were gathered along with a large number of goatsbeard. The broad moosewood leaves provided a bit of shelter as the morning wore on. The groups sang songs, told jokes, and gossiped about folks back home in an effort to minimize the discomfort of the stubborn, soaking humidity. Sometimes the only sound was the silence of the forest broken only by the breathing of the workers. Sometimes the jarring yowl of the chainsaws, the raptor-like growl of the grapple skidders, and the occasional thunderous thud of a huge tree hitting the forest floor somewhere down the valley would remind us all of the radical change that would soon take place in our once-in-a-lifetime work site.

After lunch on the second day, the group paused for a bizarre life-imitates-art moment. Amidst the absolute beauty and silence of our mountainside hideaway, we gathered around the truck and listened to the radio to hear, with the rest of the world, the verdict of the O.J. Simpson trial. The remote location didn't seem to temper the various, individual passions, but it thankfully placed it in the larger context.

The crew returned to work, and in short



Peirce's Woods at Longwood Gardens. Sweeps of white-blossomed foam flower (*Tiarella cordifolia*) contrast the stately trunks of tulip trees (*Liriodendron tulipifera*) in the Cathedral Glen portion of Peirce's Woods, an important historical as well as display area currently under development at Longwood Gardens. Final plans conceptualize a garden with five distinct habitats and more than 200 different species, cultivars, and hybrids of North American native trees, shrubs, and ground covers, with a particular focus on native azaleas. This new and unique display encourages visitors to investigate, consider, and learn through observing the attributes of the woodland garden and the possibilities of native plants.

order the burlap bundles in the back of the covered truck were evidence that we were almost at capacity. A rapid harvest of false solomen's seal concluded the effort, and after some group photos, the gear was reloaded, and the tools were sorted and packed aboard. The two groups bade their farewells, and in the gray late afternoon light, made the slow drive down the mountain for the ride back to the quiet motel in

Erwin.

The long, conclusive ride home in the rain on Wednesday was made in great time, and we arrived in late afternoon tired but satisfied with our efforts. The trip was a rare and wonderful experience for the individuals involved and a highly productive plant collection venture for Longwood Gardens. Our load of native woodland plants, approximately 10,000 individual

crowns, roots, stolons, and bulbs, were sorted over the next two days in the Research Division headhouse. These thousands of plants, that had sat quietly for years in the North Carolina mountains, were planted in their new sites over the next few days to begin their new life as part of the eastern native woodland display garden in Peirce's Woods at Longwood Garden.

To the Rescue?

Gardeners should be aware that the term "rescue" sometimes disingenuously masks the fact that plants offered for sale have been unethically removed from wild habitats. The operation described in this article was truly a rescue. The plants in question were in certain and imminent danger of destruction had they not been removed. The operation was carried out with formal permission from the appropriate authorities, in this case, the North Carolina Department of Transportation.

The majority of the native plants used in the Peirce Woods garden have been propagated by Longwood Gardens staff or by cooperating commercial nurseries. Continuing research at Longwood is directed toward the development of reliable, efficient methods of propagating these beautiful yet rare native species. Longwood Gardens supports the horticultural industry that makes ethically produced native plants available to gardeners in adequate quantities and at reasonable prices.

James Duell is a recent graduate of Longwood's Professional Gardener Training Program. He credits his parents' gardening ability for his interest in horticulture and the influence of Longwood Section gardener Jeff Lynch for developing Jim's potential.

Dave Thompson is Longwood's Continuing Education and Inservice Training coordinator. He teaches a writing course for the professional gardener trainees and is editor of the *Longwood Chimes*, Longwood's in-house newsletter. Dave previously served as groundskeeping foreman and section gardener of Longwood's formal rose garden.

The Jenkins Arboretum Celebrates 20

5,000 Rhododendrons and Azaleas, Wildflowers, Natural Habitats, Towering Trees . . .

 by John P. Swan

The questions came via computer from kids all over the country. "What is the oldest tree?" "Do they mate?"

Harold Sweetman, director of the Jenkins Arboretum, acting in the role of Scientist of the Month on Scholastic Network of America Online, cheerfully fielded questions from curious youngsters.

"Education is what we're all about, it's the salvation of our planet," says Sweetman, whose practical and professional knowledge coupled with his zeal for teaching makes horticultural learning fun for all ages. But, the big story is how he and his father before him breathed life into Elisabeth Phillippe Jenkins' vision of a "public park, arboretum, and wildlife sanctuary." The Jenkins Arboretum, like many great horticultural sites in the Delaware Valley — Morris Arboretum of the University of Pennsylvania, Longwood Gardens, Chanticleer — owes its origin largely to one person's passion for preservation, concern for our vanishing natural landscape, love of horticulture, and the ability to do something about it.

90 tree species

Tucked away on a secluded hillside in Devon, the Arboretum today covers 46 wooded acres, a remnant of Pennsylvania hardwood forest much like William Penn found on his arrival. Penn's Woods, however, were just what the late Philadelphia landscape architect George Patton had in mind when he began an environmental assessment of the site following the death of Jenkins in 1968. The property, unlike many public gardens in the region, was not an estate garden, but a mature natural woodland populated with countless birds and an undisturbed understory of blueberry, mountain laurel, and pink pinxterbloom azaleas. Over 90 different species of trees native to the Northeast added to the rich botanical diversity.

Nature knows best

The discovery of an underlying rock strata of Baltimore gneiss and sparkling Wissahickon schist coupled with a north-facing terrain meant that the land was

blessed with good drainage and an acidic pH in the 4.5 range, perfect for ericaceous plants.

Nature pointed the way. By 1972, Jenkins, the newest arboretum in the area, responded: set course to build a collection of rhododendrons and azaleas* second to none, and do it in a naturalistic landscape style that would include other plants native to Eastern North America.

Construction and landscaping began in earnest. Serpentine walks were laid out through the woods for comfortable strolling over hill and hollow. A picturesque, open space at the foot of the woods became the setting for a shimmering 1½-acre pond. Hundred-year storm drains were installed. The entire site was surveyed with a series of 50 ft. x 50 ft. plots for future mapping of planted areas. Then the first of many thousands of young rhododendrons were planted. Work continued at an accelerated pace under the direction of Leonard Sweetman, the first director.

Spring, 1976. The debut. Jenkins Arboretum opens as a public garden. Development is still in the early stages. Small plots have been planted. Many more to come. Most plants are teenagers, shy of lush bloom while they build their fibrous root systems for the explosion of color to come. The pond is there, naked.

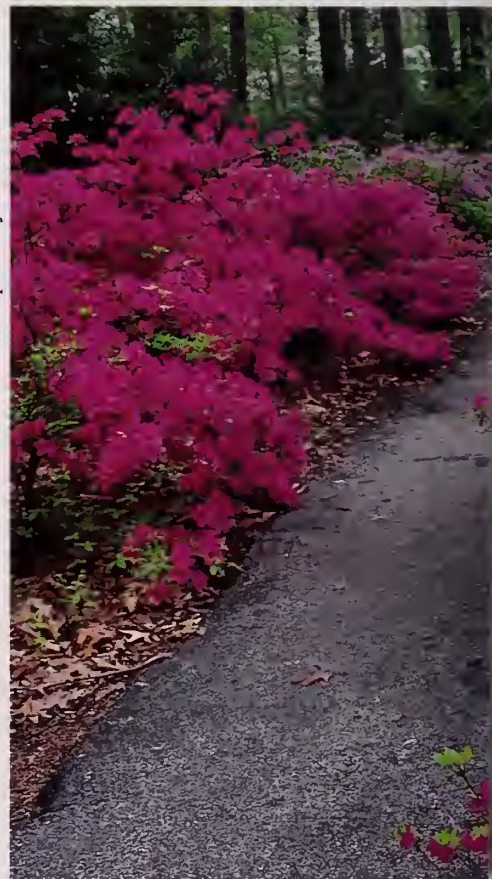
A botanical jewel

Today, two decades of non-stop propagation, plantings, landscaping, and growth have transformed "Penn's Woods" into a luxuriant, colorful showplace, enough to make our staid Quaker ancestor blush. Staff and volunteers have created a beautiful botanical jewel, almost from scratch, placing the youngest arboretum in the Delaware Valley squarely in the "must see" category.

What you not only see, but sense and smell at different turns, are countless rhododendrons in an enchanting forest garden setting. This is contrasted with unexpected surprises such as coming upon

*Botanically speaking azaleas are classified as rhododendrons, so we will refer to both as rhododendrons except in reference to specific plant names.

photos by Harold Sweetman



the large country pond set in a sunny meadow surrounded by wildflowers. There is an undefinable quality about the gardens — an environment that gives one the sense of being in a sheltered, private place. Meditative some call it. The Arboretum is laid out on an intimate human scale beneath the soaring cathedral-like trees. A lacy network of pathways twist and turn among dense plantings of large rhododendrons and drifts of smaller varieties. There's the fun of self-discovery on encountering a 30-foot-long white carpet of foam flowers, *Tiarella cordifolia*, in bloom — or negotiating a hairpin turn and being confronted with rhododendron 'Scintillation' sparkling pink in full flower. A knock-out plant!

Dazzling spring displays

Rhododendrons are in bloom from late March throughout the summer and even into September. Spring is the time to see a

the green scene / may 1996

Years of Growth:



Top left: Azaleas burst into brilliant color in springtime and invite a stroll through Jenkins Arboretum. **Top right:** *Rhododendron calendulaceum*, Flame Azalea. **Bottom left:** Leafy green of the forest canopy, filtered sunlight in summer at Jenkins Arboretum, a cool, fresh refuge. **Bottom right:** *Rhododendron* hybrid 'David Gable.'

dazzling display of rhododendrons in bold reds, purples to the delicate yellow tones, pinks and whites. As board of directors member Maria Thompson puts it, "I love to poke around, choose different paths. It's like a little adventure each time and it's all mine for that moment. The opalescent colors of the orangey-pink azaleas in the springtime just take my breath away!"

photo by Harold Sweetman

With some 5,000 rhododendrons representing 130 species from the world over, Jenkins excels both as a botanical and pleasure garden specializing in this spectacular growing collection, enough to make anyone breathless at peak bloom time. All 16 Eastern North American species are represented along with hundreds of their garden-worthy hybrids. There are over 450 Glen Dale azalea cultivars on display or in the nursery, all of them ideal for Delaware Valley gardeners.

If your taste runs to the unusual, there are variegated leaf forms to whet your appetite such as *Rhododendron ponticum variegatum*, 'Goldflimmer' and 'President Roosevelt.' Azalea 'Koromo Shikibu' has fascinating strap-like lavender flowers. If you want to extend the blooming season in your own garden July to September, you'll flip over the brilliant orange/red blooms of the small-leaved native species, *Rhododendron prunifolium*.

Research plays a role

The Jenkins Arboretum serves a scientific purpose not always apparent to the visitor. Varieties are tested for their adaptability to Delaware Valley conditions and planted in



Rhododendron macrosepalum var. *Linearifolium* 'Seigai.'

groups of three, five or seven. If one plants gives up that's a fluke, but if all should languish or worse, then that variety is known to be unsatisfactory for gardens in the region. The USDA temperate zones for plant hardiness are a guide to cold tolerance. How about heat tolerance?

Harold Sweetman is testing that attribute with 138 rhododendron hybridized in New England by Weston Nurseries. Rare Chinese species propagated from seed collected by Sweetman on an expedition to inner China are beginning to reach evaluation stage as

young plants. The Arboretum has received the American Rhododendron Society Bronze medal from the Valley Forge Chapter, the highest award a local chapter can give, for its remarkable collection and research efforts.

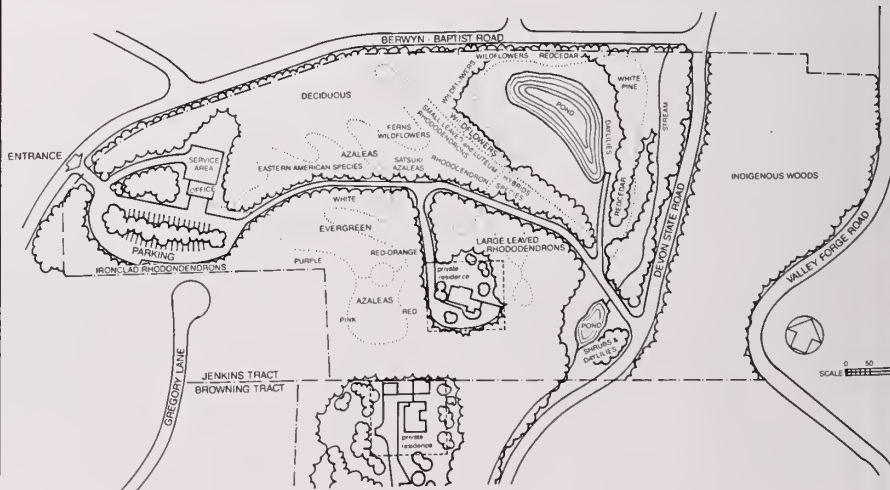
Painted turtles and flying squirrels

Continuing down the pathways past massed ferns and woodland ground covers, the leafy canopy gives way to the bright open space and the placid pond. Here, demonstration plantings of several hundred


When You Go —

Visitors can stroll at ease from sunrise to sunset 7 days a week free of admission. The Jenkins' contribution was the foresight to preserve this stunning tract in perpetuity. The Arboretum relies primarily on funds raised through membership (Friends of the Jenkins Arboretum) to support its programs. Call or write if you would like information about joining the Friends of the Jenkins Arboretum.

The Arboretum is located at:
631 Berwyn Baptist Road
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(610) 647-8870



B❖A❖S❖I❖L



Three basil varieties: small, round 'Spicy Globe' has a clove-like flavor; center 'Dark Opal' with purple leaves good for making pink basil vinegar; in back and on right, lettuce leaf basil produces largest leaves.



The basil most of us grow or buy is generically called sweet basil. It's tasty, it's prolific, it's easy to grow. But there are other basil: one that tastes like cinnamon, or lemon, or anise. Or if you're into making flavored vinegars there are some with maroon leaves that give the vinegar the flavor of basil and color it pink. And rather than spend time chopping sweet basil, grow the tiny-leaved varieties like 'Spicy Globe' whose leaves are about the size of a fingernail but, as the name implies, it grows into a perfect globe. These globe-shaped mounds make great summertime hedges. And its flavor is indeed spicy — more clove-like than conventional basil. Other small-leaved basil have names like 'Piccolo,' 'Green Ball' and 'Fino Verde.'

If you want hamburger-size leaves, grow lettuce-leaved basil. This one has white flowers as do sweet basil, 'Genovese' and 'Napolitan' basil — these three have similar flavors and look alike. Cinnamon basil with green leaves has purple/pink flowers growing on purple stems. 'Opal' and 'Purple Ruffles' have both purple flowers and purple leaves, their flavor is about the same as green varieties and for my palate, maybe a little harsh. 'Purple Ruffles' and 'Green Ruffles' have crinkled leaves.

White flowers or pink, smooth or crinkled leaves colored purple or green, all basil are sensitive to cold. There is no point trying to start them outdoors much before

the weather settles and the soil has warmed. Like its culinary companion, the tomato, basil needs warmth to thrive. Both these tropical plants are frost sensitive and cannot tolerate the cool, damp weather that we customarily have in spring. So don't be tempted to plant either of these outdoors until the soil gets really warm, here in western New Jersey — and most of the Delaware Valley — May 15 is generally safe. But what's the rush; wait until Memorial Day, then if you happen to have a microclimate on the cool side your plants won't get zapped by a cold snap.

Get a jump on the weather, start basil indoors

For impatient gardeners a safe way to plant basil is to start it indoors. You'll need basil seed, a few flower pots, plastic bags, some Twistems, and a bag of sterile seed-starting mix like Pro-Mix or Redi-earth. These bone-dry mixes are a combination of peat moss, vermiculite and perlite plus some nutrients. Package size varies, a five-pound bag is usually enough to get started. Cut a slit in the bag of mix, pour in enough water to make it damp but not sopping wet. Fill a flowerpot with the moistened mix, sprinkle seeds over the surface, then barely cover with more mix, put the pot into a plastic bag and seal with a Twistem. Park the plastic enclosed pot in a warm place — a sunny windowsill, the top of the TV,



Photos, clockwise

Using a plastic bag, make a miniature greenhouse to start basil from seed. After plants germinate and start developing leaves, remove plastic. Transplant crowded seedlings to other pots.

Painted juice and vegetable cans make excellent containers for indoor-grown herbs. Put a layer of gravel in the bottom of each can, place potted herb in can on top of gravel. Water sparingly. Cluster a variety of herbs as a centerpiece on the dinnertable; guests can pinch the herb of their choice to flavor their food. Move herbs to sunny window sill after the dinner party.

Grow basil in rows out in the garden just like other vegetables. When harvesting, pinch out the tips of the branches to encourage side growth, which makes bushy plants. Harvested basil stems added to indoor bouquets makes them pleasantly fragrant.

Insalata Caprese (Tomato and Mozzarella Salad)

Like hot dogs and sauerkraut, basil and tomatoes are a natural combination. Any tomato spaghetti sauce is enhanced with basil. Insalata caprese, the Italian name for tomato and mozzarella salad, is always topped with chopped basil. I like to make mine with alternating slices of yellow and red tomatoes each separated with a slice of mozzarella cheese. Add salt and pepper, sprinkle with finely chopped garlic, drizzle with extra-virgin olive oil and about a dozen drops of balsamic vinegar. Top with a generous dusting of chopped basil. Outstanding!

photos by Walter Chandoha



Plant basil seedlings in tomato sauce cans in sterile mix with an inch of gravel on the bottom. Avoid overwatering. Insert plastic plant marker with dinner guest's name, use as a place card for dinner party. Guests take plants home.

refrigerator, or a radiator if the heat is still on. My cellar furnace not only fires up to heat the house but also makes hot water so it generates heat both summer and winter. It's the perfect place for seed starting. To buffer the heat, I invert an aluminum baking pan on top of the furnace and place the plastic enclosed pots on top of the pan. The bottom heat accelerates germination.

In three to five days when the seeds germinate, remove the plastic bag and place the pot on a saucer and park it on the sunniest windowsill in the house. Or if you have under-the-counter fluorescent lights, put the pot under the lights. When the soil looks dry, add water to the saucer under the

pot. Don't pour water over the plants, this can kill them with a disease called damping-off. When the seedlings develop a second set of leaves, carefully transplant into individual pots and give them a bright sunny exposure. When transplanting, handle the fragile seedlings by their leaves, not the stems which are delicate and easily damaged.

When the weather gets warm toward the middle of May place the potted basil plants outdoors in a sunny but sheltered location to harden them off. No matter how warm it is outside don't be tempted to put the plants into the garden without toughening them up for seven to 10 days. Indoors, the plants live in a utopian atmosphere. Outdoors, they have to put up with extreme temperature swings between day and night and maybe they're beaten by the wind and pelted with rain. Hardening them off for a little more than a week gets them used to the outdoor world. To further stack the odds of their survival in your favor, plant them out in the garden on an overcast or rainy day. For a week or two after transplanting, water them about every third day, and afterwards once a week if there is no rain. If they're planted in a soil enriched with compost they need no further fertilizing.

Fresh basil all winter

If you want fresh basil growing indoors

all through the winter start the seed as described above but when you transplant the new seedlings to individual pots, add some sand to the soil mix for faster draining. Some gardeners tend to overwater plants growing indoors in the winter. For basil to thrive indoors during the winter months they must have sunshine or be grown under lights. All through the winter I grow basil and other culinary herbs in a south-facing window in my dining room, which gets sun from early morning to mid-afternoon. All of the herbs are in clay pots, which are inserted in "cache" pots of painted tin cans. When I have a dinner party I use these, in lieu of flowers, as a flavorful, fragrant centerpiece. Should any of my guests want a flavor adjustment, they simply take a pinch of their herb of choice and sprinkle it on their food.

Speaking of tin cans, I use small tomato sauce cans planted with basil seedlings as place cards. The guest's name is written on a plant marker inserted into the can and set where each person is to sit. Guests are encouraged to take their "place cards" home when they leave. These basil "place cards" are a big hit with my non-gardening friends who might not have basil growing at home.

Direct seeding outdoors

If you wait until the soil really gets warm, say after Memorial Day, you can skip

starting the seed indoors and plant directly out in the garden. Even the most voracious basil-consuming family doesn't need more than three or four basil plants so rather than plant a row of the stuff, plant just a few clumps in what I call fertile holes. Dig a hole a foot deep and wide, fill it with compost and top with a half-inch layer of the same sterile potting soil that you'd use for indoor seed starting, put a pinch of seed in the center of the fertile hole, cover with a handful of soil, tamp down, then water. When the seeds come up, don't even bother thinning the seedlings if you're looking for a thick clump of basil.

To keep basil plants fat and bushy, pinch them. After they develop about four to five pairs of leaves pinch out the tips. Below each pinch at the leaf nodes, two new branches will emerge. When these new branches have three to four sets of leaves pinch out their tips. As you keep pinching, new branches form below the pinch making the plants branch out.

Like all annuals, basil's objective is to regenerate itself. The plants make flowers and they in turn grow into seeds. When the plants are pinched to make them bushy you're thwarting this objective, that's why they keep branching out. As summer drifts into fall and the plants get to about two feet high and across, stop pinching and let the flowers develop. These flowers are a fragrant bonus that can be cut for bouquets made up entirely of basil or mixed with whatever other blooms are growing in your garden. The fragrance of fresh basil flowers is as pungent as the leaves.

When the flowers go to seed and later dry on their stalks, the clove-like smell is even more intense. Use these in potpourris, either alone or with aromatic flower petals. But don't use all of those dried seed heads in potpourris, save some to plant next year.

Once you let basil go to seed you'll never again have to buy seeds. The basil growing in my garden today had its origins from seed that my late wife's relatives gave her when we visited Italy 12 years ago. Now, at the end of each season, I collect the dried flower heads for next year's plantings. Earlier, I've cut flowers from the plants for indoor bouquets and potted basil plants decorated my dining room table. But most important of all, both the leaves and the flowers sparked up the flavors of a wide range of foods throughout the year. Basil is a pretty versatile plant.

Freelance photographer/writer Walter Chandoha's photographs have appeared on over 300 magazine covers and in thousands of advertisements. He has written and/or illustrated 25 books on animals and nature. His articles and photographs have appeared in innumerable national magazines. He is a frequent contributor to *Green Scene*.

MAY KEY to Crossword Puzzle on p. 29



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At Caprilands Herb Farm: An antique wooden trencher holds a variety of salad greens laying in wait before tossing under a mosaic of chopped carrots, onion, celery, red cabbage and red onion. Edible flowers of nasturtiums, johnny-jump-ups, calendula, garlic chives and chives, plus herbs of dill and basil complete this edible work of art served daily at the Caprilands luncheon. photo by Randa Bishop



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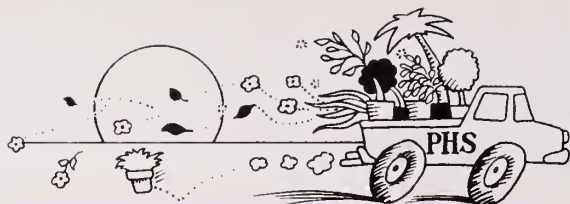
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An issue about
Water features in the Garden

Water . . . owing to its changefulness of form and mood and colour and to the vast range of its effects is ever the principal source of landscape beauty, and has like music a mysterious influence over the mind. . . . and whether in movement or repose it fascinates the eye, which returns to it again and again.

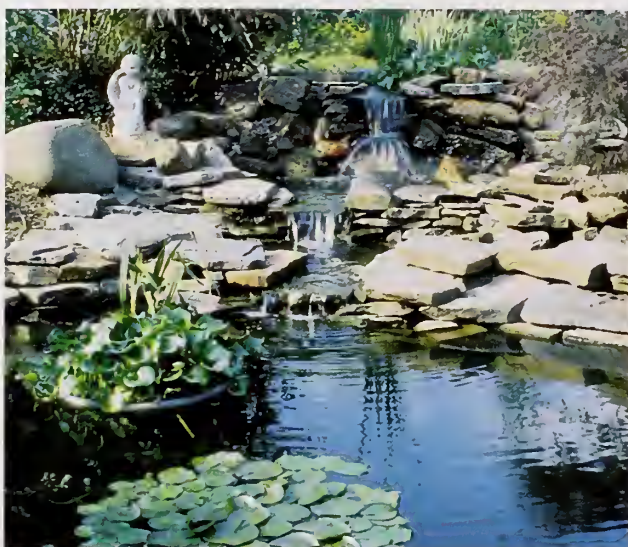
Sir George Sitwell, *On the Making of Gardens* 1909



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Jean Byrne, Editor



17.



25.

Front cover: Despite the difficulties during construction, Richard L. Bitner maintains that no country property is complete without its pond. See his cautionary tale on page 25. The pond on the cover is one of five on his property. photo by Richard L. Bitner

Grow with us.

in this issue

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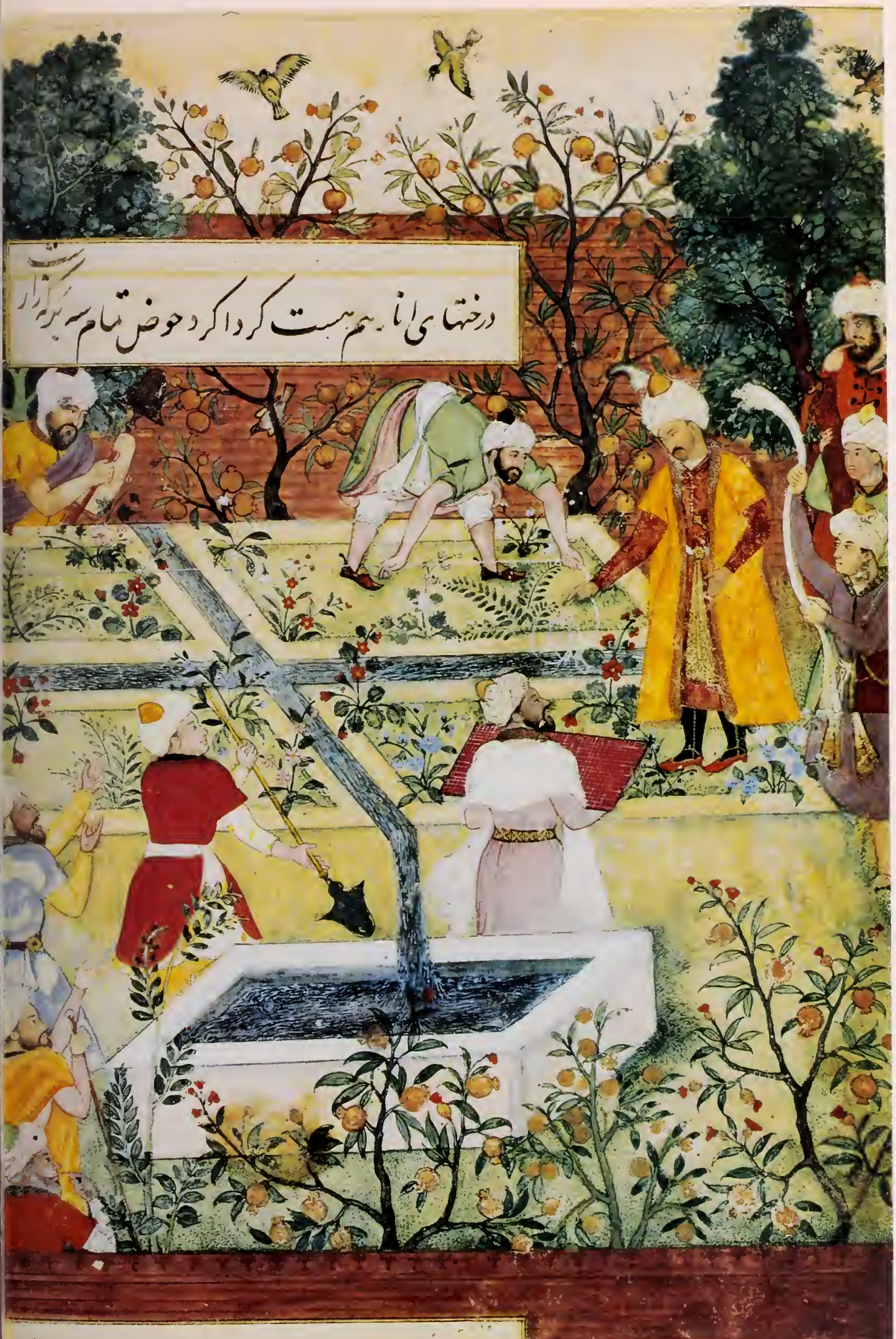
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*The garden of Emperor Babur. The Emperor Babur directs the planting of a garden around 1500 AD. The four-square plan defined by flowing runnels, the raised water tank, and the lush plantings are hallmarks of Islamic garden design. Illustration from *Earthly Paradise Garden & Courtyard in Islam* by Jonas Lehrman, reprinted courtesy of University of California Press, Berkley & Los Angeles, 1980*

Water in the Garden – It Flows through History





Water in the Garden – It Flows through History

Water has helped to define garden design style from the beginning of landscape history to the present. Water's great variety of physical shapes and forms includes everything from still pools to splashy fountains, naturalistic lakes to rectangular canals. The particular shape, size, and style of a water feature depends on the details of climate, topography, and human culture. The cultural meaning of water has covered the full range from sacred to secular. A look at the great historical periods of garden design reveals a rich array of ideas and possibilities for using water in the modern garden.

Islamic gardens

The modern English word "paradise" originated in ancient Persia, where *pairi-daeza* literally meant "a walled garden." Most human cultures have imagined paradise as a garden. In the Judeo-Christian tradition, for example, Adam and Eve lived in a paradise garden. While the Garden of Eden had a sacred tree at its center, the Persian garden of paradise had water at its center — spiritually as well as in artifact.

In Islamic gardens a small pool is elevated at the center to represent the sacred mountain, home of the water god Enki. Four symbolic rivers radiated from the central pool in a simple cross plan, with the water trickling outward through small rills — or runnels — carved into stone pavement. They refer to the four sacred rivers of life, and serve the practical needs of cooling the desert air and irrigating the plants. The

Villa Lante illustrates the garden's function as a place of entertainment. There, a stone table had a water-filled canal carved down its center, where wine was kept chilled for the cardinal's al fresco diners.

garden's overall shape is square, with lush green plantings filling neat rectangular beds. The meaning and form of water in the Islamic garden represent a perfect fusion of cultural symbolism and practical function. The Islamic garden not only represents paradise, but provides an actual oasis in the harsh desert.

Ancient Egyptian gardens

As in Persia, the ancient Egyptians believed that water was the source of all life.



In ancient Egypt, the goddess Isis was often depicted in the company of a sacred tree — usually a sycamore. In the wild, sycamores tend to grow near sources of water. Isis, shown here, sits among the tree's branches to dispense the "waters of life" from an earthen jug. Detail from an Egyptian painting, 13th c. BC, I. Rosellini, *Monumenti dell' Egitto e della Nubia*, Pisa, 1932, pl. cxxiv.

The major source of water in Egypt is the Nile River. In ancient times its annual flooding fertilized the agricultural plains, and filled the many reservoirs constructed to hold water for irrigation. Many of these reservoirs were centered in walled gardens, adjacent to a residence. The raised water tank was usually shaped in a simple square or rectangle, and the overall form of the garden mimicked the shape of the tank.

Small irrigation channels fed a lush array of fruiting plants such as figs, grapes, olives and pomegranates. Within the reservoirs were grown papyrus and lotus, along with ducks and fish. Fishing in the reservoir, under the shade of a grape arbor, was a popular pastime. The Egyptian reservoir garden was an oasis as practical as it was ornamental, providing food for the table as well as shelter from the harsh desert environment.

Gardens of the Italian Renaissance

The garden villas of the 16th century Italian Renaissance were places of entertainment and delight, often built by wealthy cardinals of the Catholic Church. While classical architecture and sculpture attested to the scholarship and good taste of the villa's owner, a variety of water jets and sprays made the gardens exciting and fun. Terraced courtyards were carved into steeply sloping terrain, affording distant views



and allowing extensive use of gravity-fed fountains. Dramatic ensembles of sculpture and fountains punctuated each change of level. The most famous such garden, the Villa d'Este, had literally hundreds of water elements displaying every imaginable feat of hydraulic engineering. Water cascaded down stairs, shot up hissing from the mouths of dragons, and sprang forth from the breasts of carved stone goddesses. Some fountains made music by forcing air through organ pipes, or imitated the sounds



of birds. Another garden, the Villa Lante, illustrates the garden's function as a place of entertainment. There, a stone table had a water-filled canal carved down its center, where wine was kept chilled for the cardinal's *al fresco* diners.

The French formal garden

As the seat of world power shifted from Rome to Paris in the 17th century, the great landscape gardener Andre Le Notre had the opportunity to develop the formal gar-

den style to its grandest scale. If the Italian garden was a setting for private entertainment, the French garden was a place for mass public spectacle. At gardens such as Vaux le Vicompte and Louis XIV's Versailles, Le Notre reorganized nature into broad straight lines that appeared to stretch beyond the horizon. Thousands of the Sun King's court could gather at once to witness lavish displays of fountains and fireworks.

While the flatter topography of the land

Modeled after a 19th century water garden at the Italian Villa Gamberaia, Pierre duPont created his water garden in the 1920s. Its recently restored and modernized pumping system handles 4,500 gallons of water per minute, with a constantly changing fountain display controlled by a computer. As the wind changes, wind sensors automatically adjust the maximum height of jets to keep the water in the pools. May be seen at Longwood Gardens.

around Paris allowed fewer gravity-fed fountains than in Italy, it was possible to collect water into enormous canals and formal lakes. Upon these huge rectangular sheets of water, full-scale naval battles were reenacted for the delight of the king's court. Afterwards, guests might be invited to a theatrical performance in an outdoor theater, which would feature a display of glorious fountains lighted in rainbow hues. The exuberant fountains satisfied a delight with artifice and technology, while the huge flat canals symbolized man's "perfection" of nature and domination of the Earth.

The English landscape garden

In 18th century England, it seemed that every nobleman's first concern was the landscaping of his estate. Usually, his garden encompassed a large naturalistic lake with many mysterious bays and coves. Its shores wound about in arcs that followed Hogarth's "curving line of nature," intended to conceal all evidence of the human hand. No garish fountains broke the lake's serene surface. A stroll about its shores revealed a cinematic progression of romantic vistas. Classical temples and statuary were viewed in arrangements of meadows and groupings of trees — all reflected in the still mirror of

In rural Pennsylvania the historical precedent is the farm pond, with its associated spring house and spreading sycamore tree. In Pennsylvania's natural environment are meadow springs, vernal seeps, and small wooded streams.

the lake. Were man and nature in perfect balance? Actually, the whole thing was artificial. The man-made hills, temples, as well as the lake they surrounded, were no less nature "perfected" in man's image than were their formal counterparts in France.

19th century gardening in Europe and the United States

While the naturalistic garden style lived on through the 19th century in Europe and North America, an alternative style emerged that celebrated the mark of human creativity. Elaborate geometric shapes, meticulously "bedded out" with gaudy flowering annuals and dramatic foliage plants, delighted the eye with daring combinations of color and texture. A popular focal point in

the midst of all this visual excitement would be an ornamental fountain. In Victorian times these fountains evolved into elaborate affairs, often made of ornate cast iron or highly carved stone. As the waters splashed in them, they glittered like dazzling jewels in the garden setting. As in the time of Louis XIV, 19th century garden enthusiasts were enamored with artifice.

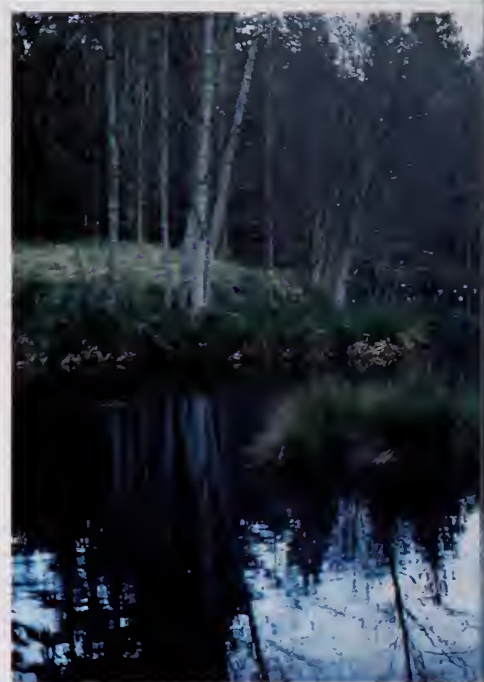
Late 19th century gardeners were also fascinated with novelty. Economic and cultural exchanges with Asia, along with news of archaeological discoveries in the Mediterranean, raised the Victorians' interest in exotic places and things. Consequently, gardens became odd, eclectic amalgamations where exuberant fountains might be placed incongruously beside a calm lake. Also at this time, there evolved a particular fascination with the garden traditions of China and Japan.

Gardens of China and Japan

Traditional Chinese and Japanese gardens captured the spiritual essence of nature in carefully contrived naturalistic scenes, usually including water as a major design element. Compositions of natural stone, water, and plants were viewed from a fixed point, or observed on a meditative stroll through the garden. The classic Japanese pond garden, like the English landscape garden, featured a central lake with views across still water — but in Japan the views were abstractions of natural scenery, not arrangements of classical buildings and monuments. Although the pond was quiet, a nearby cascade of stones or gravel might symbolize a splashing waterfall. The rhythmic "clack . . . clack . . ." of a water-driven *shishi odoshi*, or "deer scare," might punctuate the garden's serenity. Perhaps a subtle trickle of water might produce a gentle sound, enticing one of the nature spirits — or *kami* to live there.

The *Zen* essence of nature was represented in refined abstraction, and not necessarily concealing the human touch. In some gardens the presence of water was entirely symbolic. Flat sheets of sand or fine gravel were raked into meticulous patterns of parallel lines, to simulate the movement of waves. In the modern Japanese garden, artifice is often quite evident. There is no attempt to disguise the garden as "nature," yet all is done to arouse awareness of the spirits that inhabit the natural world.

photos by W. Gary Smith



Using water in gardens today

With so many options and historical precedents, how can you choose what to do with water in your garden today? As a first step, thoroughly investigate the natural patterns and cultural uses of water in your local landscape. Second, look within yourself and discover what meanings or associations you personally attribute to water. Do you consider water to symbolize the source of all life? Perhaps you are most interested in water's cooling effects, or the sounds generated by moving water. Decide for yourself what water means to you. Third, choose water features that combine regional patterns with personal interests. The best gardens — and the best water features — are those that combine local traditions with personal expression.



Strawberry Mansion, Fairmount Park, Philadelphia, Pa.



postcard from W. Gary Smith collection



photo by W. Gary Smith

For example, if you are designing a garden in the hot, dry American southwest, you might consider the Persian or ancient Egyptian gardens as your model. Create a walled garden, cooled and irrigated by a small pool with radiating runnels. Adobe walls and native plants could provide strong connections to the local architectural and ecological context. In New England, a water feature might be inspired by the numerous kettle holes and bogs found in glaciated landscapes. In rural Pennsylvania the historical precedent is the farm pond, with its associated spring house and spreading sycamore tree. In Pennsylvania's natural environment are meadow springs, vernal seeps, and small wooded streams. Your personal interests and tastes might lead you to combine local images of water with

cultural or artistic traditions from Asia, Africa, or Europe.

The main challenge with designing water features is to choose the shapes, sizes, and functions that are right for you, and then integrate them into the garden in a way that respects the local landscape and local traditions. A garden is a personal artistic fusion of nature and culture. A well-chosen water feature can give the garden focus and express your personal connection between art and nature.



W. Gary Smith is associate professor of Landscape Design in the Department of Plant & Soil Sciences at the University of Delaware. He is currently on sabbatical leave working on a long-range Master Plan for Longwood Gardens.

Top left: The Reflection Pool at the Bloedel Reserve at Bainbridge Island in Washington (state) represents a fusion of 17th century French and modern American ideals. The formal shape suggests a "perfection" of nature, while the water itself draws attention to the presence of ground water just a few inches beneath the forest floor. **Top right:** Late 19th century Fairmount Park fountain: Fountains, as in this turn-of-the-century postcard image of Philadelphia's Fairmount Park, were used to provide an exuberant focal point in Victorian-era "bedding out" gardens. (Postcard from the collection of W. Gary Smith). **Bottom left:** The Bird Sanctuary at Bloedel Reserve features a naturalistic pond in the England landscape tradition. A path around the pond presents a changing progression of naturalistic views across water. **Bottom right:** A Japanese-style meditation garden at the Bloedel Reserve demonstrates the use of sculptural stones and raked gravel to represent islands in a tranquil sea.



The Swimming Hole on Stoney Bank Road

by Mary Lou Wolfe



Imagine water emerging just to the right of the red begonias in the foreground, then cascading melodiously into a small pool to the left (not visible). The heated spa is the small circular pool in the center, raised slightly above the main pool.

photo by
Mary Lou Wolfe

She sold him a hole in the ground, and he's never been sorry. Jane Blandy not only sold her husband Jack a hole, but also the "modified mountain lake-style free-form pool" with auxilliary, raised, elevated, heated spa.

Jack Blandy was a ripe prospect, a landscape designer and owner of Stoney Bank Nurseries, whose home property was the perfect "modified mountainside" for a large free-form swimming pool. Jane, during those years, worked for a fine pool company and was a super salesperson. Their teenage children were eager to enjoy a pool.

In 1986 the Blandys purchased 24 acres on a Glen Mills hillside in Delaware County. The property, which had probably been a pig farm a century ago, had a dilapidated house and barn whose remains

photo by Jack Blandy



At left: Looking from the upstairs window in his home in 1987, Jack Blandy photographed the pool installation before the arrival of bonus rocks that rolled downhill from his neighbor and before any plantings were installed. The greenhouse, partially visible at the top of the photo, is now hidden behind a thick bamboo hedge. Below: At this waterfall under construction, Blandy has grooved a channel in the highest granite boulder (11:00 o'clock position) to allow water to cascade down into a small pool where it will be recirculated.

Not only were the rocks on the wrong side of the propertyline, but all this construction rained muddy water down the newly contoured hillside, overpowering Blandy's drainage system and landing directly in the new swimming pool.

photo by Mary Lou Wolfe



yielded some of the stone facing for the house the Blandys built. To support their landscape business they had built a greenhouse at the top of their acres. Between greenhouse and dwelling was a dense climax forest of tulip poplars on a steep, rocky slope. Once they made the decision to build a pool, they hired a forester who cut hundreds of trees on that hillside, keeping sawdust flying from October to mid-March. the lumber was sold in Lancaster County and the grading of the empty slope began.

Jack Blandy, whose Stoney Bank Nurseries specializes in garden installations that use water features, knew exactly how to proceed. The flat shelf needed for the pool area was created. Bulldozing and grading carved out a generous walkway and swale that led uphill in a semi-circle around the pool slope. This walkway would provide access for construction equipment and would also direct drainage to keep uphill water from spilling down into the pool. The business end of the pool was located. All the machinery needed to maintain the water system was placed so as to be accessible but not intrusive. Drains and an underground drip watering system for the plantings were installed. The pool company excavated, wooden forms for pool edges were constructed, and the sculpted hole

was sprayed with gunite (liquid concrete). For coping, handsome cut slate was laid in modified stone dust, an underlayment Blandy prefers to concrete. All was proceeding on schedule.

Things were happening, however, on the uphill property that adjoins Stoney Bank's acres. A series of condominiums was nearing completion in a large development that topped the hill. The developer had run into a huge rock outcropping where the final condo unit was to be built. As he tried to excavate before finally abandoning the site, a huge pile of boulders accumulated. The pile ended up, unbeknownst to the

builder, on Blandy's property. Not only were the rocks on the wrong side of the property line, but all this construction rained muddy water down the newly contoured hillside, overpowering Blandy's drainage system and landing directly in the new swimming pool. Blandy confronted the developer asking "What are you going to do about this?" This builder offered Blandy the pile of huge boulders and the services, for a week, of the "largest Case front-end loader made."

It was an exciting week. This enormous machine proved too big to navigate the circumference path. The raised spa and big



A curtain of *Cedrus atlantica glauca pendula* masks mechanical pool equipment in the foreground. Swimmers have access to the pool through an attractive screened porch adjoining the house.

10

pool were already constructed. The front-end loader couldn't reach the hillside from below so Blandy says "Rocks had to be smooged in over the edge" above the pool. "Smoozing" is an inexact science when practiced using a machine of this size. One very large rock catapulted downhill into the newly constructed spa, smashing one wall. Repairing the damaged rebars (metal rods that reinforce cement installations) and recementing were a minor annoyance. The gains in hillside drama were wonderful. Huge hunks of local granite jutted out of the hillside creating spectacular planting spaces. The bulking up of the top of the slope (later planted with bamboo) provided real screening possibilities for dividing the greenhouse space from the house and pool area. Blandy, his brother Glen, and crew continued off and on during the following year, to push and set the stones until they felt the effect was right and ready for planting.

One very large rock catapulted downhill into the newly constructed spa, smashing one wall . . . The gains in hillside drama were wonderful.

Since the pool is close to the house, it is the focus of attention year-round. Blandy chose plants that provide a tremendous range of color, scale, and texture, attractive through all four seasons. (A partial list of plants he chose appears in the accompanying box.) A *Cedrus atlantica* 'Glaucia Pendula' is effectively trained to screen the mechanical maintenance area. Intimate spaces like those surrounding the little spa and its approach steps are ordered with creeping thyme, deliciously fragrant under a bare foot, and livened by the small repeat blooming daylilies, *Hemerocallis* 'Stella d'Oro' and *H.* 'Happy Returns.' Late in the summer ornamental grasses like *Miscanthus*

sinensis 'Morning Light' and the coarse blooms of joe-pye weed (*Eupatorium* 'Gateway') add interesting shapes and color to the rocky hillside.

Blandy says "In the last three to four years, 50% of the landscape installations that we've done have included some sort of water feature. People are interested in animating their gardens with the sound and look and feel of water." As we talked, Blandy highlighted major considerations for good home pool installations by describing the solutions he and Jane have worked out.

Drainage: On this quite steep slope the whole top area is designed so that all water from uphill is drained away from the pool; the swale and walkway function as a natural watercourse directing water into underground drains and a stone collecting basin. Between house and swimming pool, underground perforated PVC pipes take care of excess water. All flagstone coping

edging the pool is laid in 6-in. to 8-in. of modified stone and stone dust. This installation system lessens cracking of flagstone and joints. Careful angling of the coping shunts drainage water away from the pool.

Fencing: Blandy has carefully limited the access to his pool with various inconspicuous barriers and fencing, quite distant and invisible from the pool site. The house, porch, and a latticed, gated patio provide a barrier on the downhill side. Fencing (soon to be electrified for deer), masked by shrubs and a thick bamboo planting, covers the remaining uphill areas. He urges clients to keep the mandated fencing as inconspicuous and far away from the pool as possible. Only the deer, trying to sample the lush plantings, are aware of fencing on this property. Deer have infiltrated, but only when a gate has been left open. The occasional groundhog does make it in for a swim now and then despite the surveillance team of Bubba the cat and Spanky the yellow Labrador.

Maintenance: Blandy says pool maintenance equipment usually consumes not more than 15 sq. ft. Smaller pools without heated spas need even less mechanical space. He urges that this equipment be located away from areas where you'll be sitting because even though operated mostly at night, the machines do generate some noise.

As to maintaining water quality, since Jane Blandy is so knowledgeable about the chemistry needed, she and Jack take care of water treatment themselves. They use bromide instead of chlorine as part of their treatment procedure, finding it less irritating to eyes and less odorous. They also use one of the automated floating vacuum devices (Polaris). The long, moving tail lifts debris from the pool bottom and the machine sucks it up. The Blandys also use a lightweight solar cover for the big pool. It catches debris and its bubble mesh material lets sunlight through and retains heat. In winter a heavy dark material covers the pool. In March, as water collects and warms on top of the cover, frogs and toads find it the perfect spawning place. The Blandys are blessed with thousands of tiny toads and frogs by swimming season. Blandy moves some of these to a small fish pond near the porch.

Lighting: Three kinds of illumination are used: lights in the bottom of the pool; low-voltage "mood" lighting above ground; and an emergency spotlight, used especially when teens are partying and swimming.

In addition to these basics some special

photo by Adam Laipson



Blandy touches make this Glen Mills installation highly successful. The siting of the pool makes access from screened porch and kitchen easy and direct. The trees and shrubs planted near the pool and among the rocks are attractive in any season. The diving board is unique, a handsome thrust of solid granite. No bounce, but lots of class. The small fish pond with a tiny recirculating waterfall produces a pleasant gurgle and a home for some of those newly developed frogs. The speed of the recirculating waterfall is adjustable. Says Blandy, "If there's a teenage party with rock music, you run the stream full force. If you're sitting with your aunt, you cut it way back and have a small trickle."

I have a feeling this pool and its surroundings will never really be finished and that's because Jack Blandy is having so much fun with that hole that Jane sold him. A new project close to completion is a high waterfall engineered on one end of the pool area. When work schedules allow, Blandy, some of his crew, and cat Bubba work on the new attraction. It allows water to flow over a grooved rock before dropping 8 ft. to a collecting basin where it is recirculated. It will sound wonderful on a hot evening with or without rock music.

When Blandy completes that project, there is always next year's Philadelphia Flower Show exhibit to dream up. When I asked my six-year-old granddaughter Emily what she liked best after she toured the 1996 Flower Show with her dad, she said "I liked that swamp with the wiggly bridge. I wish I could have walked on it." The "Wiggly Bridge" exhibit titled "Walk on Water" appealed to the judges too. They awarded Stoney Bank's beautifully planted watery pond with its Japanese-style bridge "Best in Show in the Landscape Division," the Philadelphia Trophy for Outstanding Horticultural Achievement, and The Special Achievement Award for the "Garden Federation of Pennsylvania Award for Horticulture."

Stoney Bank Nurseries' 1996 Flower Show exhibit won Best in Show in the Landscape category for "Walk on Water." The Japanese two-plank bridge links land to water in simple natural harmony. The Pennsylvania Horticultural Society's judge's panel gave the exhibit a possible 99 out of 100 points: "Close to perfection! Scale flawless. Use of water and structure brilliant . . . Internal composition strong. Color use masterful! Texture and color great!"

Some Planted Used around the Blandy Pool

Trees and Shrubs

- Acer palmatum* — Japanese maple
- Acer palmatum* 'Sangokaku' — Coral bark maple
- Chamaecyparis obtusa* — Hinoki cypress
- Cornus florida* 'Pendula' — Weeping flowering dogwood
- Cornus kousa* 'Elizabeth Lustgarten' — Korean dogwood
- Cunninghamia lanceolata* 'Glaucua' — China fir
- Juniperus conferta* — Japanese carpet juniper
- Picea pungens* 'Glaucua Globosa' — Dwarf globe blue spruce
- Pinus bungeana* — Lace bark pine
- Pinus cembra* — Swiss stone pine
- Pinus mugo* — Swiss pine
- Pinus thunbergiana* — Japanese black pine

Perennials

- Eupatorium* 'Gateway' & 'Alba' — Joe-pye weed
- Fargesia nitida* — Clump (non-spreading) bamboo
- Hemerocallis* 'Stella d'Oro' & 'Happy Returns'
- Hosta* 'Sum and Substance'
- Miscanthus sinensis* 'Morning Light'
- Sempervivum* sp. — Hens & chicks
- Thymus glabrescens* — Creeping thyme
- Yucca filamentosa* 'Golden Sword' — Golden sword yucca

Photographer/writer Mary Lou Wolfe is a frequent contributor to *Green Scene*.



Creating a Sanctuary Amidst Demolished Buildings

A waterfall offers serenity at a factory site  by David R. Hunt



money trying to remove it.

The buildings had been torn down to accommodate employee parking, but the little section of concrete presented a problem. It was eight or nine inches higher than the surrounding ground level, and as such was unusable for parking.

Debris from demolished buildings was everywhere. Huge wooden roof supports were broken and tossed haphazardly here and there.

Out of curiosity, I cross-cut one of the timbers and counted the growth rings. There were at least 125, not counting those cut off when the lumber was milled. Considering the age of the buildings, some easy arithmetic told me that George Washington could have sat in the shade of that tree even before the unpleasantness between King George and the colonies. Ragged piles of brick, stone and cement completed the devastated landscape.

I asked my boss, John MacDonald, if I could have the stubborn little patch of concrete to play with. He said sure, and never asked me what I had in mind.

As maintenance superintendent, my job required me to dispose of an old cedar water tank from the boiler room. Being cedar, even though very old, a few long pieces were salvageable, and I used them as upright posts around "my" concrete, and as joists to support a roof of redwood slats salvaged from a water cooling tower. Once these were nailed on top and I had built a bench, I had a comfortable place to sit at lunch, out of the office, and at little or no expense to me or to the company.

The decision to build a water feature

I have no idea why I decided to build a water feature, as I was later told it was called, except that the spot next to "my pad" was bare, and I like to keep busy. If I had had any hint of the interest it would later generate, I might have decided to build on a somewhat larger scale. I certainly would have had a more carefully drawn plan.

It's hard to believe that a bomb wasn't detonated at this old factory site. If anyplace ever needed a garden, this would be it. As a point of reference, "Lake Opportunity" is located in the back against the left corner where the old elevator shaft once stood, beneath that stairway to nowhere.

Some easy arithmetic told me that George Washington could have sat in the shade of that tree even before the unpleasantness between King George and the colonies.

Ordinarily, if I were to decide to build a garden, or a pond, it would be a matter of deciding what I want to build, which spot would best accommodate what I have in mind, and which plan would best suit my needs.

The project that I describe here is strange because I don't own or rent the property where I built; I did not choose its whereabouts; I didn't have a plan, nor any idea of what the finished project would look like. Moreover, with a few exceptions, I was working in my spare time, before the start of the work-day and at lunch in 30-minute segments.

In May of 1980, Impact Services, my employer for more than 20 years now, moved into a complex of century-old buildings in the northeastern section of Philadelphia.

A few years later, after some of the more decrepit of those buildings were demolished, a slab of concrete remained, so deeply embedded that it would not yield to the bulldozer. It wasn't very large, and was situated almost in the corner between two buildings. We decided it would be more practical to leave it than to spend time and

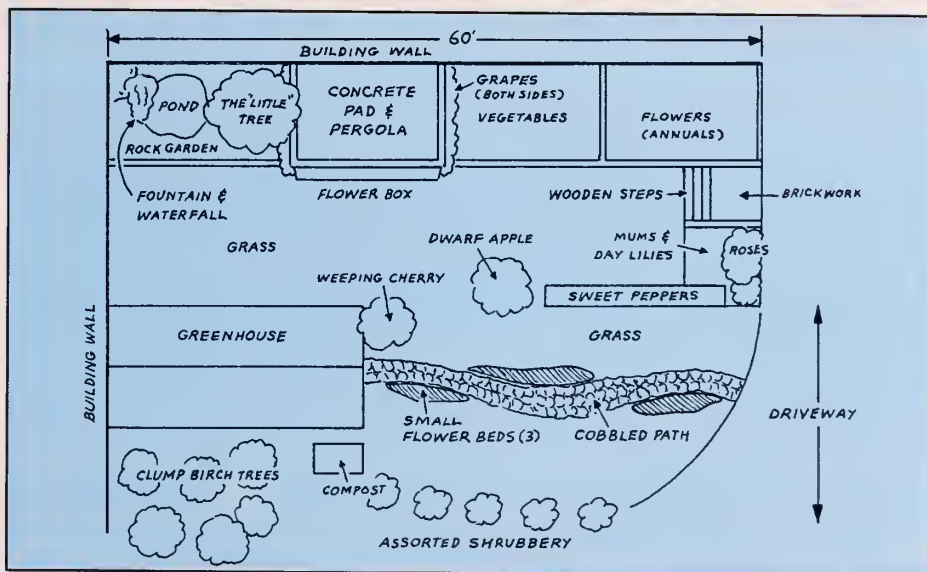
photo by David R. Hunt



An overall view of the garden as it is today. The pool, obscured by grapevines, is hidden in the upper corner. The structures, garden and little waterfall were built over a 10-year period, 30 minutes at a time during the author's lunch break and before work.

I began by cutting some pieces of the old timbers and placing them between the concrete patch and the corner where the walls of the old factory came together to define the area where I would be working, and to act as a retaining wall for the soil. Next, I outlined the pool that would form the reservoir for the waterfall, dug a hole and threw the soil into the corner. As the pile grew higher, I gathered some of the stones ripped from the buildings' foundations when they were demolished, and mortared them in place to form bases for the waterfall. I continued until the pile was taller than my head, being careful to overhang each section of stonework so that the water would have a clear drop to the pool below, or be diverted into secondary bowls that would in turn flow back to the main stream. I was trying to create maximum splash with minimum water.

It was necessary while laying the stonework to determine the directions I wanted the water to travel, the proportions of water in each direction, and the size of the smaller



catch-basins, while more or less keeping the masonry decorative, and the basins level. Obviously, if they're slanted too far in any direction all the water will spill out on one side. Also obviously, there's no way to test the works as it progresses, since pouring water onto wet mortar dissolves it, and you have to start over.

When the combination of the piled soil, now faced with stone, and the depth of the hole totaled about six feet, I fashioned a small cement cup at the top of the pile into

which I would pump water. Next, I lined the hole I had dug with some reinforcing wire, mixed some concrete, and poured it in, smoothed the sides and bottom to a thickness of about three inches, and surrounded the top of the pool with stones as a decorative border. I mortared the bottom pool to the waterfall superstructure, and concealed a piece of plastic tubing down the side of the fall, with one end in the cup at the top and other other in the pool attached to a submersible pump. I drilled a



Not exactly crystal cascades, but “dancing,” and enough splash to be called a fountain. Nestled into the corner, it seems to have been there almost forever, although it was enlarged to accommodate the visitors to the bird bath.

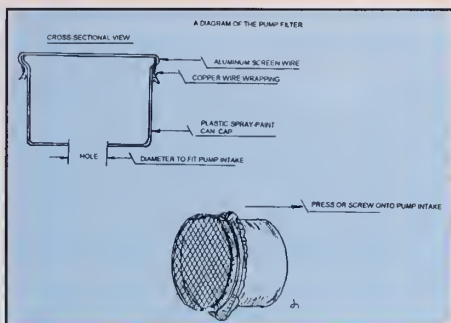
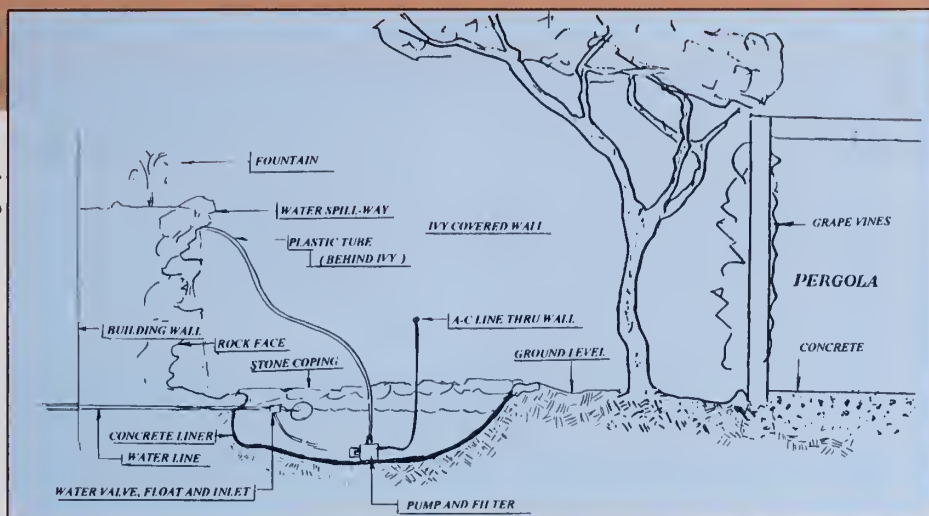


photo by Ira Beckoff



David Hunt collects an eggplant from the garden, which is now a favorite spot for company lunches and banquets as well as meetings.

hole through the wall of the building, installed a water outlet hose "bib," and at the same time I pulled an electrical cord with a waterproof receptacle and a ground fault interrupter to the outside.

At this point I have to stress that if anyone is considering a project such as this, the most important part of the whole procedure is to make sure of the electrical supply line and the pump, because a short circuit into the pool is like a hair dryer in the bathtub, possibly deadly, definitely no fun at all. Being electrocuted can ruin your whole day!

Also in the circuit, under the pergola, I installed a switch so that I could turn the pump on and off for cleaning.

I filled the pond to a level somewhat above the top of the pump and declared the work finished.

The water flows

I can still recall the anticipation I felt when I first threw the switch. I envisioned crystal cascades of sparkling water tumbling musically from bowl to bowl, joyously reunited near the bottom, and plunging back into the reservoir and to the pump to being its magical journey anew, and all for my amusement.

It didn't happen that way. A mere trickle of water struggled out of the hose, mostly absorbed by the mortar and stone. The pump was inadequate, the delivery tube

was too small in diameter, and the catch-basins had little or nothing to catch.

I bought a new pump and larger tubing, and reworked the design of the catch-basins. This time when I turned the power on, with only a few minor adjustments, I was able to generate (almost) the sound I supposed a waterfall should make.

Each morning I filled the pond using a garden hose to replenish water lost through evaporation, leakage, splashing and such. Each evening before leaving for home, I turned the pump off to conserve electricity, an acceptable procedure for about two weeks. I noticed algae building up in the pond, on the pump, and in the plastic supply tube. Adding a small quantity of chlorine bleach to the water stopped the algae, but the laundry-room odor was unacceptable.

I drilled another hole in the wall and slipped a piece of quarter-inch copper tubing, part of a refrigerator icemaker kit, through to the pond. I attached the self-puncturing tap to the water supply line inside the building, and the other end to a float-valve from a toilet. I installed the float valve in a corner of the lower pool. Hidden by a stone overhang, that valve became the source, control, and water level monitor in the pool, and the treated city water being added every now and then helped to clear most of the algae.

We'd never had many birds around the building complex, except for a few pigeons, but once the water began to flow, frequently five or six species of smaller birds could be seen enjoying the new source of refreshment.

I figured that by turning the pump off at night, I was only saving about 20 cents worth of electricity a week, so I decided to let the pump run full time. Curiously, the additional aeration provided by constantly running the pump seemed to solve almost completely what remained of the algae problem.

I gathered some large stones and placed them into the mound of soil behind the waterfall and added a few flowering plants to hide the raw earth.

One day I brought a sprig of grape ivy and a few lily-of-the-valley from home and planted them around the pond.

When I thought I had gone as far with it as I could, I presented the whole thing back to the corporation as a celebration of five years of success in our "new home." A contest to name the pond was organized, with prizes. "Lake Opportunity," the name chosen, has its foundation in the work that Impact Services performs (see box on p. 16).

The plantings

The soil in this part of the city, especially clay that has been covered by buildings for a century, is not suitable for growing much of anything except weeds, and the majority of the flowers I had planted surrounding "Lake Opportunity" (I still get embarrassed by the name), were not doing well at all.



Entrance to the prize-winning factory garden built by the author. The water feature, which started the whole thing, is set all the way in the back to the right.

I had at my disposal some coarse sand and some lime left from construction projects that I churned together in a concrete mixer a little at a time with a few bags of leaf mulch brought from home, and buckets of manure that I acquired from a local school of agriculture. I adjusted the mixture by adding a little of each at a time until it looked the way I thought garden soil should look. I dumped each filled barrow onto the clay and dug it in. Everything began to grow like mad. I bought a tree from a mail-order house that I thought would provide some shade in future years. When it arrived it was "bare-root stock"—bare root, bare limbs, barely a tree at all. I planted it, prayerfully, between the pool and the concrete.

I also planted some grape vines to grow up the sides of the pergola, just in case.

The very fact that the garden was now growing so well provided the next problem.

As the ivy, flowers, plants, and even my tree, grew, they shed leaves and blossoms, all of which seemed to find their way into the pond, and eventually cut off the flow from the pump. When the water flow slowed, the aeration ceased, and with the rotting vegetation as fuel, the algae returned with a vengeance. Even worse, it brought with it an odor that could only be described as "swamp," and an infestation of mosquitoes.

I needed a filter. I tried several methods to keep the debris from the pump, but the easiest and best I found, and the one I still use, I made as follows: I took the plastic cap

from a can of spray paint and cut a hole in the closed end just large enough to accept the pump intake. I covered the open end with a piece of window screen held in place with a wrap of soft copper wire around the cap and screen (see drawing). It works very well. I can clean it in a moment under running water or replace it when it becomes necessary for a few pennies.

Once I had everything working well, I changed it.

More and more birds were dropping in at the waterfall, but the basins were too small to accommodate more than a couple at a time. I shaped the soil in the area above the waterfall into a bird-bath and covered it with cement. In the center of this large basin I attached the hose from the pump to an "L-" shaped pipe to direct the water straight up into the air in a fountain. When I activated the pump, a spout of water about two-feet high erupted from the tube. As I was about to adjust the pressure, the water level in the basin raised above the level of the outlet, and the fountain actually seemed to begin to "dance." It looked so pretentious, I laughed out loud.

I am not a gardener. I have never before attempted to grow anything more exotic than a tomato plant or two in my backyard, as many of my neighbors do. I don't have time or the space for a large garden at home. It just happened that whatever I planted alongside the pool or beside the concrete patio flourished, and as the plants grew, so did the obsession to plant.

I learned about the City Gardens Contest

quite by accident when a neighbor gave my wife an entry blank, urging her to enter her backyard garden. She demurred, but suggested that I enter the little garden I had made behind the boiler room at work. As a lark, I filled out and mailed the card, never expecting more than a passing nod from the judges, even though I plied them with my wife Martha's famous iced tea. That year I got three surprises. First, when I was notified that I had become a finalist; again when Jane Pepper called and said she wanted to write about the garden in her *Inquirer* column; and the biggest surprise of all, a first place in the contest. That was five years ago in 1991.

Since then we, the garden and I, have been honored each year with a first or second prize, and the little patch of concrete and the grounds around it have become a favorite place for lunch, company barbecues, meetings, and such.

The garden, to me, is reminiscent of the comment made by a famous sculptor when he was asked "How can you make such things out of a block of stone?" and he replied, "I decide what it should look like and knock off all the pieces that don't fit." Most of the ingredients were there all the time. All I did was knock off the pieces that didn't fit, and put in a few that did.

Impact Services Corporation

Impact Services Corporation is a private non-profit community service organization, specifically designed to assist low-income families, the chronically unemployed, and those in need of job procurement skills.

Services include G.E.D. tutoring, life skills classes, resume preparation, and job-search support, as well as facilities that provide interim work and transitional activities toward full-time gainful employment outside the corporation, and a homeless veteran's support group.

Impact Services also offers an assortment of modestly priced building materials to low-income families, maintains a business records archive, and produces science kits for use in the elementary grades of the Philadelphia public schools. For more information call 215-739-1600.

David Hunt is the maintenance superintendent of the building complex for Impact Services in Philadelphia's Kensington area. He also oversees their science kit department.



Let There Be a Water Feature

The author, a water garden specialist and proprietor of Gateway Landscaping & Garden Center in Hockessin, Delaware, walks the gardener who aspires to build a pond through the planning stages.



by Peg Castorani

Prospective clients who want to add a water feature to their existing landscapes often ask me to explore alternatives with them to help create their dream pond. Because the long-term success of a water garden depends upon proper siting, materials selection, correct installation procedures, and appropriate stocking ratios, they first must decide what role the water garden is to play in the new landscape. Will it be a sanctuary for reflection, with the pond serving to enhance the mood? Perhaps they want to add a water feature near a patio or deck, or even create a meandering stream to attract wildlife. A spouted statue or basin nestled in a shaded corner may be their dream garden. Whatever its design, the water feature will be the focal point of this garden world.

Photo by Peg Castorani

Siting basics

After you've established your goals, consider the practical and aesthetic concerns when locating the water garden in your landscape. A small garden requires an emphasis on detail to ensure that the water feature is not overlooked. An Asian-style fountain is perfect in a Japanese minimalist landscape. And what could be better for a small site than a formal, in-ground pond bordered by dwarf evergreens? You might also consider a small self-enclosed water garden because of the ease of caring for it. During the winter months bring the water garden indoors to your sunniest room or enclosed porch. Such water features come in a large variety of styles to complement any setting. At Gateway Garden Center, we sell many half whiskey barrels with liners as an inexpensive way to get started in water gardening. A barrel placed on a deck or beside an entryway, allows you to enjoy the beauty of a water lily, a dwarf lotus, even a few tiny goldfish, and water quality is easily maintained because it has the proper ratio of water surface area to depth.

In a spacious landscape, site considerations play a major role in the design of your pond. A serene pool of water lilies requires a minimum of six hours of full sun daily to produce exquisite blooms. Shaded lots accommodate water fountains, fish ponds and water courses. Generally, we position

17



Shade garden with a simple Japanese fountain.



photos by Peg Castorani

A cascade of ponds creates a beautiful effect.

Formal ponds reflect the character of formal gardens and terraces. Stunning in a small garden, they are elegant in a large one. They are constructed with well-defined edges and steep sides. Formal shapes are complemented by fountains, water lilies and a few select marginal plants. Preformed fiberglass and vinyl pools may be preferred for their easy installation.

Two new products on the market help create flawless formal ponds. "CIM" is a liquid rubber that is spread over sakrete, effectively rubberizing it. "Pond Seal" is montmorillonite mixed into the existing soil once it has been tilled. Concrete ponds will heave and crack during the first winter if not properly constructed. Consult a landscape contractor experienced in masonry construction. If you choose to use the popular EPDM rubber liner, simply mask the folds that occur in construction with a formal coping such as flagstone. The flagstone is set in concrete and extends out over the edge of the water surface uniformly. Whatever edging you choose, it should complement a formal design.

Installation

Having decided on the style of your pond, define its shape before you dig. For an informal style, lay a garden hose in the shape that appeals to you. Study the shape and adjust it over several days. Consider the views from both inside and outside your home so you can enjoy your pond throughout the seasons. A preformed pond must be placed in the site and then traced.

Before installing any type of pond, prepare the soil by removing any rocks and tree roots. Protect your liner with 2 in. of sand spread on top of the soil. If you are installing a liner pond, you may cushion it with old rugs, rug padding, wet newspapers or a textile fabric. Preformed ponds must have sand.

Assemble all the tools you will need before you start. In addition to good shovels (if a backhoe is not available), be sure to include a spirit level and some straight and true boards. There are many ways to establish accuracy when leveling, but these tools are indispensable. Start to dig from the pond's center to the edge. With a liner pond, the floor should be as close to level as possible to keep pots upright. You may also dig a small crater in the bottom to hold debris that tends to collect in any pond. Dig shelves into the sides of your pond that will hold the taller marginal plants. Shelves also provide a hiding space for small fish, tadpoles and frogs. Dig the shelves 12 in. deep and 12 to 18 in. wide to accommodate

ponds in areas free of tree roots and falling leaves. The most uncomplicated and least expensive pond to install is one with simple, curved lines located in a flat, open landscape. However, that's not always the most intriguing site in which to work. A pond may be softly sculpted into a gentle slope with a waterfall to create a quiet, soothing sound. A steeper slope might descend as a dramatic cascade of small ponds spilling into a larger pool. If your site *slopes away from your house*, locate the pond on the highest level for the most enjoyable view. Position your pond at the *low end* of a slope that *faces your home* to display the water's surface and the plants to their best advantage.

Beware of any low areas in your landscape. If fertilizer or garden chemicals run into your pond from adjacent lawns or gardens, they will pollute your water. Water might also collect underneath your liner and cause it to lift up. I've witnessed the entire pond contents, fish included, strewn about the yard from such a siting error.

Consider also the sun's position. The late afternoon sun should pass over your shoulder to reflect on the water surface, and not into your eyes. Squinting at pond-side is prohibited.

Materials and design work together

The materials you choose will affect the success of your pond design. Most clients

choose a natural-style pond, which reflects the trend to create gardens that blend well with the native landscape. Preformed ponds are available in a variety of shapes, sizes and materials. You may purchase one made from fiberglass, which is the most durable. Fiberglass's manufacturing process makes it available in larger sizes than molded plastic, and it's easily repaired if damaged. Fiberglass ponds will also free-stand on a deck. You can easily conceal the sides with wall stone or potted flowers. Preformed ponds of various plastics are less expensive than fiberglass yet should still last more than 10 years if properly installed. These ponds are generally not available in depths greater than 18 in., which allows for the winter keeping of goldfish, snails, frogs and hardy aquatic plants, but not koi. If you want to include koi in your water garden, build it with EPDM, a synthetic rubber, to a minimum depth of 3 ft.

EPDM liners come in precut sizes or custom cut to your specifications. The 45 mil EPDM is durable and a great value for the customer. The manufacturer guarantees the 45 mil liner for 20 years. You can also purchase a 45 mil liner backed with a 15 mil textile fabric. This liner comes with a lifetime warranty. EPDM is considered the best choice for an informal pond. It has great flexibility and is easily repaired if punctured. Always choose a black liner as it will "disappear" as the pond matures.



Pond excavation site with shelves and waterfall
Note the retaining wall in progress.

ample potted plants. When space is limited, avoid shelves and place one or two large marginal* plants on overturned clay pots or milk crates. If racoons frequent your neighborhood, dispense with shelves that make lovely seats for the predators to swipe at your beloved fish. Angle the sides of your pond 2 in. for every foot of depth. A pond with 3 ft. of water will have 6 in. of slope from bottom to top.

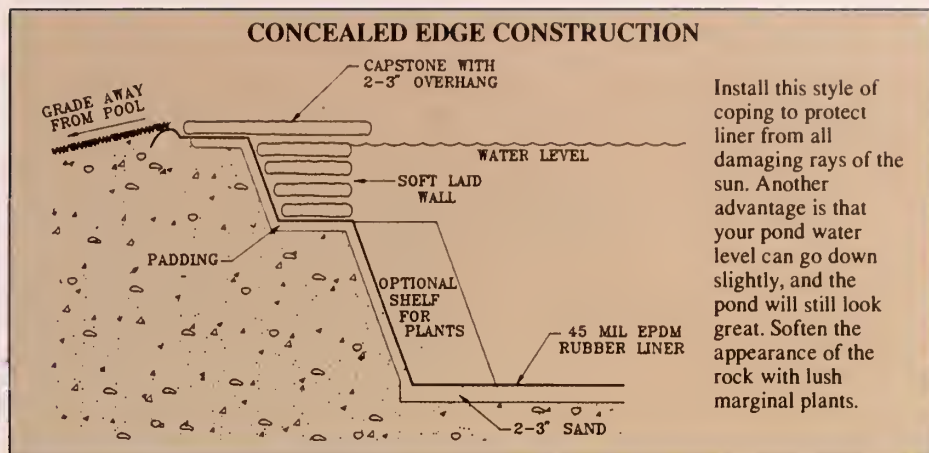
When you are ready to lay the liner into the hole, allow it to warm up to increase its flexibility by laying it on a driveway. (Avoid grass, which yellows quickly if covered with the liner in the sun.) Carry the liner with the help of a friend, into the center and begin to shape it into the hole. The final appearance will be better if you make a few large folds rather than many smaller ones. Once the liner is laid into the shelves, start to fill the pond to weigh it down. Stretch the liner evenly over the edge and hold it in place with some large stones. To make the folds and position the liner, someone must be in the pond. Plan to install on a sunny day and wear waders. Running water into the pond is by far the best method to allow the liner to seek its own position as you arrange the pleats and overlap.

When installing a preformed pond, use a minimum of 2 in. of sand beneath it to help you level the pond from the bottom up. You must level the pond before filling it and several times during the filling process. You will backfill the soil as you fill the pond with water. You might need to fill and empty the pond a few times to establish an absolute level edge at the top when full. An out-of-level pond will reveal too much liner on one side, exposing it to the sun's damaging rays, as well as spoiling the finished appearance.

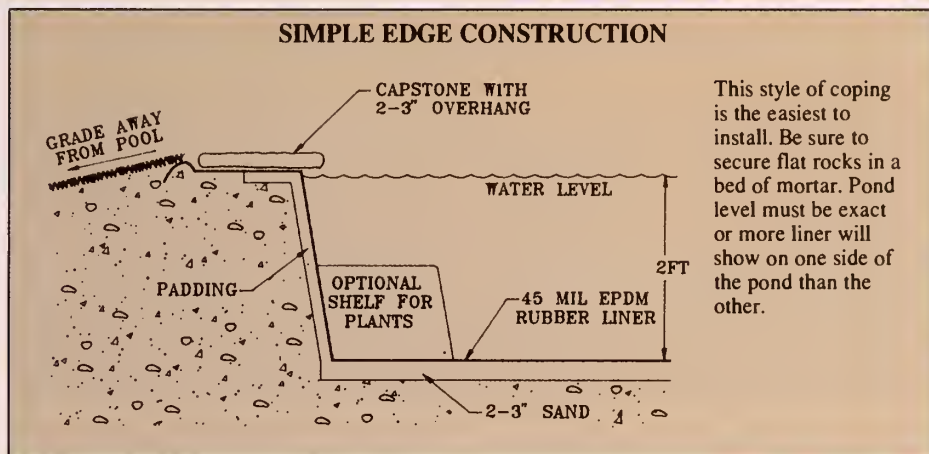
The final touch

Choose the edging for your pond with materials consistent with the design and

*Plants that provide a vertical accent in the pond landscape. They are placed on your plant shelves or on top of a sturdy support base in your pond.



Install this style of coping to protect liner from all damaging rays of the sun. Another advantage is that your pond water level can go down slightly, and the pond will still look great. Soften the appearance of the rock with lush marginal plants.



This style of coping is the easiest to install. Be sure to secure flat rocks in a bed of mortar. Pond level must be exact or more liner will show on one side of the pond than the other.

feel of the adjacent landscaping. Different copings require varied levels of construction expertise to install them. Pavers, flagstone, brick or flat natural rocks may be used. These need to be secured in a bed of mortar. The underlying soil must be stable and level. A slight slope away from the pond is desirable to encourage any debris or water to run away from the pond edge.

Turf next to the pond can cause maintenance problems. Grass must be hand cut around the water's edge, and lawn chemicals may not be used where they could wash into the pond. An alternative is to design your pond with a retaining wall surrounding it, an ideal arrangement for children and elderly. Build the wall at a comfortable height and breadth for seating and you will be rewarded with an intimate view of your pond as you sit and gaze down on the aquatic world at your fingertips. Your fish will even nibble out of your hand once they become accustomed to your presence.

Waterfall magic

When your plans include a waterfall be sure to locate it at one end of the pond and not in the center. Water lilies prefer still water and will bloom best in an area with few currents. Build your waterfall from the bottom up. Preformed waterfalls are available, and can be artfully naturalized with landscape plantings. EPDM is also an excellent choice. We frequently construct a

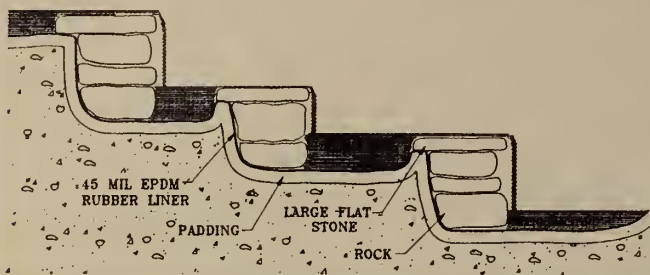
series of small ponds that spill one into another. Construct the smallest pond at the top of the slope and increase the size of each descending pond. Not only do these falls create a lovely sound, but they stay cleaner than a fall in a stream, and evaporate less in summer. The secret to a wonderful waterfall sound is an echo chamber, created by extending the lowest flat rock out over the water surface. This creates a cave behind the waterfall, which enchoes the magic sound of moving water.

Pumps will operate most efficiently when placed directly under the waterfall. Purchase a pump based on its output calculations. Choose a pump on the large side since you can always reduce its flow if necessary. Output figures are not helpful unless you can visualize what the water flow rate will look like: 100 GPH (gallons per hour) produces a flow of water 1/2-in. deep and 1-in. wide. A 12-in. wide waterfall requires a minimum flow rate of 1,200 GPH at 1 ft. of height. Increase the size of your pumping capacity based on the height of your waterfall. If you plan to add a filtration system, add a second pump to maintain a steady recirculation of water through the filter media. Your electrician will need to know where you plan to install your pump(s), so think this phase out carefully.

Pumps, filters and pond maintenance

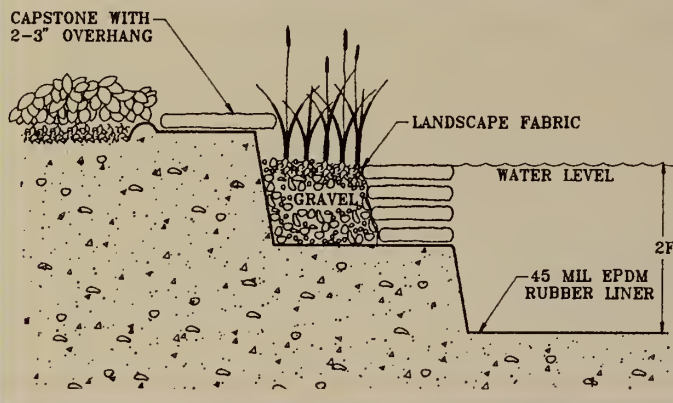
Ponds require less care than many other

WATERFALL CONSTRUCTION



Create a series of small pools that will be easier to maintain than a stream-type of waterfall. Not shown: Place an additional piece of EPDM liner under waterfall rocks to protect pond liner from the sharp edges and the weight of the flat rocks.

BOG GARDEN AND PLANT FILTER



Pipe pond water through a natural plant filter for sparkling clear water. Circulate entire volume every two to four hours. Place entry and exit piping at opposite ends of the filter. Bog area should be 10% of the pond's surface square footage area.

areas of your landscape. Maintenance is rarely a bother if the pond is well planned. Proper depth in relation to water surface area is a critical factor in obtaining water clarity. A shallow puddle of water will readily grow algae while a deeper pond will stay much clearer. Pond water that is healthy and clear can be obtained by the correct ratio of plants and fish without any additional filtration. This natural balance requires patience, patience, and more patience. In the spring, before the aquatic plants start growing vigorously, the sun may stimulate an algae bloom that turns your new pond into a big bowl of water that resembles pea soup. Don't panic. As the pond plants mature they shade the water, reducing the sun's penetration, which accelerates algae growth. These plants will also absorb the nutrients present in pond water that act as plant fertilizer. If, however, you prefer your pond to maintain its clarity all year through or if you can't bear to part with several of the baby fish that will appear every season, install an appropriate filter system to meet your needs.

Pumps and filter systems are available for every size pond and budget. A good quality, submersible pump is your best investment, whether you are running a waterfall or feeding a filter. If you are interested in an energy-efficient submersible pump, it may cost a little more, but you will recover your investment quickly because it is more economical to operate. Submersible pumps come equipped with a screen to keep the pump clean. These may

clog frequently with particles present in the pond.

The next step in filtration is to add a prefilter to the pump's intake. Prefilters trap more pond particles in a box or canister of foam. Remove it from the pond for cleaning. You can tell when it is time to clean the filter because the water flow from the water feature will be diminished. Some prefilters work biologically as well as mechanically. We've had good results with these systems in small ponds (100-800 gals.).

If your fish population is growing and your water is frequently green, add a biological filter to your system. Biological filters have revolutionized pond maintenance. A biological filter is a place where beneficial bacteria turn organic wastes into nitrates, which serve as an excellent source of aquatic plant fertilizer. These out-of-the-pond filter systems are attached to a submersible externally mounted pump and perform both mechanical and biological filtration. A good biological filter will reduce your maintenance to an occasional rinse of the prefilter media and an annual flushing of the biological filter media.

Koi crazy

Colorful koi are quick and beautiful in the pond, fascinating to observe and easily tamed. You can choose from endless color combinations. Koi have a distinctive body shape with barbels at the mouth. They will be life-long companions, living for up to 50 years. As small fish, they co-exist happily

in a pond with water lilies. As they grow, however, koi will root through your pots, dumping soil and pebbles. For this reason I don't recommend combining koi and water lilies in a natural pond setting. Koi are eager feeders and will appear hungry even after feeding. Feed them small amounts often, and encourage them to eat out of your hand. Unfortunately, they also create more waste in the pond than a goldfish of the same size. A biological filter will keep your pond water free of ammonia and nitrites. They grow much larger than goldfish and a minimum depth of 3 ft. will ensure a sufficient area for your koi to hibernate and grow.

Versatile goldfish

Goldfish also make wonderful pond companions. They multiply freely, are inexpensive to purchase, and come in a variety of shapes and colors. Goldfish do not require as much depth in a pond nor do they grow as large as koi. You can be assured of brilliant coloration when your pond is in full sun. A depth of 18-24 in. is sufficient for goldfish, winter and summer. At Gateway, we disconnect our pumps in the winter and run pond de-icers. The de-icer will keep an area of the water surface open to allow for an exchange of gases while your fish are resting on the bottom of the pond.

Stocking aquatic plants

Frequently overlooked when planning a first water garden is the rate at which aquatic plants grow. Novice pond keepers are amazed at how quickly the water surface can become completely obscured by water lilies and floating plants. A pond that measures 10 ft. x 8 ft. will provide you with an adequate area to enjoy several types of water lilies and other floating aquatics. This may seem quite large, but at Gateway, we have never had customers complain that their ponds are too large. Novice pond designers may install a small pond thinking it will be easier to construct and maintain but that's simply not true, as experienced pond keepers will tell you. Upgrading the size of your first pond liner is inexpensive and will assure you of a great selection of plants and fish for years to come.

Hardy water lilies not only add beauty but play a vital role in your pond's health. Hardy lilies bloom in red, pink, white, yellow or the "changeable" colors, which vary in color as the bloom matures. Day-blooming tropical lilies add the vivid colors of blue and purple to your pond. Their 8-10-in. blossoms stand above the water surface and their foliage is rippled on the edge. The variegated types are truly spectacular. Those of us who sit pondside in the evenings always enjoy the fragrance and



Eichhornia crassipes/water hyacinth in bloom with *Myriophyllum aquaticum*/parrot's feather (bottom left corner).

beauty of tropical night-blooming lilies, which open late in the afternoon and linger until mid-morning. Imagine entertaining near your pond with these fabulous water lilies. Plan to cover 75% of your pond's surface with water lilies and other aquatics that will provide shade for your fish while beautifying your pond. Smaller forms of nymphoides, trailing aquatics and free-floating plants are useful and attractive. The water lettuce and water hyacinth float with their roots dangling in the water, unpotted. They absorb nutrients as they provide shade. In May, when most ponds are a little green, the water hyacinth and lettuce do a terrific job of re-establishing clear water even after a seasonal naturally occurring algae bloom. I do not recommend using algacides or other pond chemicals except for the specific ones that enhance the filtration process and remove chlorine. Dead and decaying algae killed by chemicals will only encourage more algae growth. You can starve the algae from your pond with the proper ratio of plants and a light hand when feeding your fish.

In the first season, purchase the floating aquatics and any water lilies that you simply cannot live without. The submerged plants are also a vital investment as soon as your pond is filled with water and treated for chlorine. Submerged aquatic plants that oxygenate and naturally filter the water are stocked at the ratio of one bunch per 2 sq. ft. of water surface in ponds measuring over 100 sq. ft. In a smaller pond, you may need one bunch of oxygenators for every square foot of water surface to establish the same water quality. These submerged plants, called "nature's filters," are critical to the health of your pond and should be

stocked in adequate numbers. They are a bargain for the work they do.

Marginal plants can have dramatic foliage as well as seasonal blooms. Visit the garden center throughout the season to select the marginal plants you prefer. Proceed slowly with your purchases. Since you can place a limited number of plants in your pond, each one should be special. Providing shade to your water surface and planting oxygenators are the most important investments in the first season of your pond. You have now created a natural refuge for the neighborhood frogs and toads in addition to your anticipated stocking plans.

The variety of wildlife that take up residence in your new pond will delight you. Birds will drink and splash in the water. Frogs will bask on your lily pads. Dragonflies will hover over the surface. Each of your fish will take on its own personality. The hours of careful thought you have dedicated to your site, as well as the materials, construction and stocking decisions, will magnify the beauty and enjoyment of your existing landscape.

Rules of Thumb for Successful Pond Keepers

Siting Tips

- Check local regulations concerning ponds (Natural Resources Conservation Services in phone book under U.S. Dept. of Agriculture).
- Consider view from indoor and outdoor living areas.
- Avoid low areas and trees.
- Plan electrical outlets near lights and pumps.
- Site in full sun.

Determine the Size of Your Liner

Length of pond + 2 times depth + 2 ft. = length of liner

Width of pond + 2 times depth + 2 ft. = width of liner

Installation Tips

- Lay hose on ground to find preferred shape.
- No bottlenecks to restrict circulation.
- Minimum depth of 18 in. for goldfish; 3 ft. for koi.
- Dig from the center out.
- Dig shelves 12 in. deep / 12 in. wide.
- Protect liner with geofabric, sand or rugs.
- Preformed ponds must use 2 in. of sand to level it from bottom.
- Check top level in every direction.
- Warm liner in sun.
- Fill with water as soon as bottom is smooth.

Make large folds in liner, not many small ones.

Leave sufficient liner to overlap edge (12 in.).

Stocking Tips

- 1-2 in. of fish per sq. ft. of water surface area.
- 1-2 in. bunches of oxygenators per sq. ft. of water surface.
- Stock Japanese trapdoor snails and tadpoles same as oxygenators.

Calculating Pond Volume

Circle: $3.14 \times (1/2 \text{ diameter} \times 1/2 \text{ diameter}) \times \text{depth} = \text{cu. ft.}$

Length \times width \times depth = cu. ft.

Multiply cu. ft. $\times 7.5$ = pond volume in gallons.

Sloping sides and shelves reduces pond volume.

Controlling Algae

- Stop feeding your fish for 7-10 days (they will survive).
- Use black dye to reduce sun's penetration of pond water.
- Add oxygenators, water hyacinth and water lettuce.
- Cover 60-75% water surface with plants.
- Rinse mechanical filter medium daily.
- Consider a biological filter and a UV sterilizer light.
- Add beneficial bacteria to biological filter.

—Peg Castorani

Peg Castorani and her husband Steve are owners of Gateway Garden Center in Hockessin, Delaware. She manages the water garden section and enjoys working with clients to ensure the success of their water gardening endeavors. In addition to caring for her ponds at Gateway Garden Center, Peg is planning a pond for the home she and her family recently moved into.



When the Frogs Arrive

What Happens after You Install Your Pond



by Dave Thompson

A gardener's desire to add water to the garden can be traced as surely as his ancestry. It might start with childhood memories of feeling water running from a hand-held hose or spraying on your head as you ran through the sprinkler. For me, it was these plus: a small pond full of catfish at my uncle's farm outside Wichita, Kansas; a duck pond at the back of the University of Wisconsin Arboretum's Greene Prairie that I walked to on snow shoes; and the lake near Udall, Kansas, where one spring day I first saw a yellow-headed blackbird accompanied by at least 3,000 of its brothers and sisters. Experiences with water and landscape make big impressions; they linger in the mind.

These past aquatic impressions work on individuals creating gardens. Eventually, you will visit a garden, a small backyard, someone's side patio, or a garden center display and you'll see how it can be done. You'll see the pool, the rocks, the reflection, the trickle from the hidden hose, the water-lily, and the fish. You'll get a feel for the scale, the size, the work, and the materials involved. You'll know exactly where you're going to put it, and how you're going to do it. In short, you're hooked.

Resisting the naysayers

You might turn to a book for further inspiration. If you do, do not be discouraged if you read Dick Mill's introduction to *A Popular Guide to Garden Ponds**. Mills states, "... the pond is also a highly complex unit that demands close attention to many separate components. You will need basic physics, biology, mathematics and a growing awareness of water chemistry, together with an aesthetic eye for artistic arrangements, and maybe an inventive mind, to create the necessary excuses for spending more time than you ever thought possible around the pond's banks!" Luckily I didn't read this beforehand. All I know is, I have had a pond in my garden for two years now and the start-up physics, biology, mathematics, and water chemistry consisted of something like the following:

Over two weekends in March, 1994, some friends helped dig an eight-ft. long, semi-oval shaped, 24-in. deep hole at the front edge of a garden bed in front of the house. We leveled the top edge, added a shelf, carefully smoothed all the surfaces, and laid down a rubber liner, visually fitted

to the area before we began digging. After we smoothed out the liner, we filled the now rubber-covered, level hole with water.

As they remarked on the benefits of well-water not needing to be de-chlorinated, my friends went home, and I was left to line the top shelf of the now water-filled, rubber-covered, level hole with stone. As I did so, the liner began to disappear behind the stone and under the water. I then went back to my regular spring garden chores in this bed and dug, split, and replanted a variety of plants around the stone-encircled,

My water garden is certainly not Lake Michigan, nor is it an ecologically significant body of water. I won't, however, discount its effect on my personal well-being these last two years.

water-filled, rubber-covered, level hole. I then poured in a five-gallon bucket of water from a nearby "healthy" pond, an act which a friend had said would "start the nature thing." After another friend dropped off four goldfish that had outgrown their fishbowl, the plant-enhanced, stone-encircled, water-filled, rubber-covered, level hole became an official water garden.

I went inside, looked out my window at the same garden I had looked at previously, and instead of seeing just a garden, I saw an environment with plants and a pond complete with fish and brewing wildlife. I was extremely happy.

Two years later, I still know the same amount of basic physics, biology, and mathematics, and I have as much awareness of water chemistry as before. And I continue to enjoy my little garden pond every day.

The right site, size and sight

Three simple but important details will make the installation successful and ensure maximum enjoyment.

Site your pool in the right location: the most important consideration affecting your eventual enjoyment. In *A Guide to Water Gardening**, Philip Swindell states, "The position in which a garden pool is placed in relation to other major features — trees, walls, fences — is probably the most important factor influencing the ultimate success, or otherwise, of the venture."

My water garden is a butyl rubber-lined pool not dependent on a spring or stream,

so I chose a site visible from every point in my garden. Most important, the pond is visible from my front door and the window of my dining area. I see my pond all the time. Every time I open the door, whether I'm leaving the house or not, I see the pond. When I drive home, and walk up to the house, I see the pond. When I eat breakfast, lunch, dinner, or sit at my table to work, I look at the pond. My pond is sited exactly where I want it, which is why it provides so much joy. Take heed the lesson preached by every water gardening real estate agent — Location! Location! Location!

How large a water garden should you create — the second most important consideration. You can almost assuredly count on looking at your completed garden pool and uttering these words: "I wish it were bigger." And there is actually a case for bigger is better. The larger the water area, the less troublesome the fluctuations in water temperature, the more space there will be for plants, the more surface for reflection, the more room for fish, and the more habitat for frogs. Ken Druse describes the dilemma well in *Water Gardening** when he states, "I think larger is better. My interest outgrew my pool's size quickly. I wish I had more space for water plants and fish of every color... so my next pool will probably be a larger pool."

Notice Ken accents the word *next*. Why not make your first water garden just as large as your space, time, and budget will allow? If you were adding a sweep of a beautiful perennial to your garden, you would add as large a sweep as you could get your hands on. So do the water garden right the first time. Add as large a sweep of water as you can and avoid feeling it's inadequate later.

The third consideration regards a critical detail in the installation process that makes the water garden appear level to the eye. If you don't establish what is level during installation, the water will, and the edging rocks will be touching the water on one side, while six inches of the liner will be exposed on the opposite side. A crooked water garden is as disorienting as a trick house at the carnival, and about as tranquil.

Leveling the pond does not require elaborate mathematical calculations. Back when my friends and I were digging the hole, before it became rubber-covered, we took time to make sure that the top edge was level *all* the way around. Our equip-

*See book list on page 43.



Top left: Like many garden chores, installing a pond begins with digging. A garden hose was laid on the ground in the desired shape and size and digging proceeded in two stages to the final depth of approximately 24 in. The top layers of good garden soil dug out were put in a wheelbarrow and set aside for later use. The clay layers below were removed and used as fill soil elsewhere. The exposed sides were painstakingly smoothed by hand to remove any exposed rocks or protruding roots. After the hole was properly smoothed, a 10 ft. by 12 ft. butyl liner purchased from Maryland Aquatic Nursery, Jarrettsville, Maryland, for \$72 was carefully laid in the hole. The size of the liner was determined by a simple formula: Length of Liner = Length of Hole + (2 × depth) + 2 ft. and Width of Liner = Width of Hole + (2 × depth) + 2 ft. The liner edge, extending up and into the soil, was covered with local stone that hides it from view and protects it from damaging sunlight. A bog area was created at the back of the pond by extending the liner onto a shallow shelf and burying it under approximately 8 in. of soil. A couple of salvaged tree stumps provide an edge for the bog soil as well as a visual effect. **Top right:** In June, three months after installation, the edges of the pond had been softened by the surrounding vegetation. Bathed in late afternoon sunlight, the pond seemed a logical part of the garden even though it was the new kid on the block. The plants were not chosen because they were the best water garden companion plants but because they were already at home in the garden. Dividing them and adding divisions from friends' gardens kept the cost for planting the new water feature at a minimum. **Bottom:** By August of the first year the pond was a functional, entertaining aspect of the garden. The surrounding plants including verbascum, miscanthus, coneflower, yarrow, and sedums performed as usual. Four goldfish, introduced from a friend's aquarium, provided flashes of color as people approached to investigate the blooms on the lotus or the waterlily.

ment and mathematical knowledge consisted of a long carpenter's level, and a long, "straight" board. As the digging of the hole and shaping of the top edge progressed, the board and level were used to align the opposite sides of the hole. When the water was added and found its own level, it matched my eye's aesthetic level. An important detail, very easily done.

Can I take care of it?

In 1895, William Robinson probed another fear of would-be water gardeners when he stated in his *English Flower Garden*, "Unclean and ugly pools deface our gardens; some have a mania for artificial water, the effect of water pleasing them so well that they bring it near their houses where they cannot have its good effects. But they have instead the filth that gathers in stagnant water and its evil smell on many a lawn."

Robinson's diatribe reminds us of a fundamental gardening truth: Do not plant what you cannot take care of. A double row of rotting, weed-infested zucchini is one thing. Add to it, an algae-covered, green

hole garnished with dead fish and you have Robinson's nightmare. Who needs it? Do not create any kind of water garden if you do not plan on maintaining it.

On the other hand, don't think a water garden is beyond your ability to take care of with a minimum of time, effort, and knowledge. Granted I like to garden, so any time I spend there, working or not, is enjoyable. But if the question is — do you have to spend more time working in your garden because you've installed a small pond, the answer is — No.

Part of the reason for the success of my pond is the location. The pond gets sun from midday on, and on some late summer days, that wonderful yellow light of 8:30 sunsets. The only annoyance is the nearby mature magnolia, whose leaves and flowers must be cleaned from the water. My maintenance regime is simple and based on common garden sense.

So far, spring cleanup has consisted of sticking my arm into the bone-chilling water some time in April to dig out some of the debris on the bottom. The water turns black with floating sediment for a short

time, then clears again in a few days. The filtration system in the pond consists of a heavily planted bog area, roughly 1/4 the size of the overall pond, and the three to four plants that grow from submerged pots or float on top of the water.

In the fall of my pond's first year, I asked Bill Haldeman, who teaches water gardening and wildlife management courses at Longwood Gardens, whether I should clean the debris off the bottom of the pond. "Where do you think your frogs are going to be living all winter? Save that for spring."

William Uber outlines in *Water Gardening Basics** a detailed, step-by-step plan for a thorough spring cleaning of a pond. He notes, "The ideal temperature for pond cleaning is 50° to 70°, with cloud cover and possibly a little moisture." Sounds like spring to me. Perhaps this year or next I will need to thoroughly clean my pond. If so, I'll remember Uber's caution: "This should be done with care, not by devastating the pond. Remove no more than 25 percent of the overgrown grasses and plants no oftener than every two weeks." If that's the



photo by Dave Thompson



The five gallons of water collected from a nearby pond and dumped into my garden pond had apparently added the inoculation of life. The jester-like, theatrical presence of frogs and toads is in the author's opinion the greatest benefit of adding water to any garden. The haunting, relentless call of these amphibians adds a whole new element to the garden in spring.

mathematics Mills warned us about, I can handle it.

Pond paranoia

There is always a point late in the spring when I begin to experience "pond paranoia." I worry that the water is getting too green. Anthony Paul and Yvonne Rees further compound my worries by commenting in *The Water Garden*, "Scummy water is a common problem with small ponds. A certain amount of algae is present in all water, but during long periods of high sunlight even the perfect balance of plants and fish is not enough and the water turns a livid green." Livid green? Robinson's nightmare in my yard?

That's when I run to Tim Jennings, who cares for the water lily display and teaches water gardening courses at Longwood Gardens. He says, "Relax, Dave. Yours is not the largest pond in the world." Then we add a floating plant. I skim out the bit of algae attached along the edge of the rocks. The plants begin to grow. The fish get active. And the water always clears well before the livid green stage.

Throughout the summer I add water, as necessary, to keep the level about halfway up the rock ledge. This keeps the liner well submerged, out of the harmful, deteriorating rays of the sun. Anthony Paul recommends in *The Water Garden*, "... keep the pond topped up from a slowly trickling hose rather than let the water level drop over a period of time before topping off. The slow, constant introduction of fresh water helps to maintain an even temperature in the water and more stable conditions for plants and fish."

I must confess, there has been the occasion on my way out the door for a summer weekend, when noticing the lower water level, I have quickly dropped in the hose, turned on the water, and raised the level in six minutes. The pond seems refreshed, I feel better, the waterlilies stretch their leaves to the new surface by my return on Monday, and the fish are still swimming.

During a long summer dry stretch, like most of last summer's, I pick an evening when it should rain, but doesn't, to simulate rainfall in the garden area. I run a water sprinkler overnight and by the next morning, the pond is not only full, it's actually overflowed. The plants and the soil around the edge of the pond wick up the excess, and the bog area becomes completely saturated. By mid-day, the water level is back to normal. This technique partially changes the entire volume of water in the pond, sort of rinsing it out. If I knew more water chemistry I could measure the increased oxygen levels. My gauge is that the frogs look wetter.

In the autumn, as the leaves fall and blow around, I pull out as many as I can with a net or rake. I discard the floating plants and remove any plants that fail this year's applause meter. I cut back the old foliage on the hardy water lily, remove the bricks elevating it in the water, and set its container on the bottom. I float something smooth and wooden on the surface to absorb some of the pressure from the ice that will soon cover the surface.

In the winter, I do nothing to the pond except leave it alone and keep the kids from trying to skate on it. However, I do look at the snow upon ice covered surface

and wonder about all our amphibious buddies living at reduced temperatures in the muck on the bottom, as we all patiently wait for spring.

The age of amphibians

I did not realize the best part of having a water garden is not the water as much as the things that live in it. Especially, the frogs! To walk by your perennial bed and hear an ornamental grass rustle in the wind is one kind of garden pleasure. The PLOP! of a frog diving into your garden pool is one of life's absolute delights. There is nothing so wonderfully startling to me as walking up to the pool totally absorbed in thought and hearing that unexpected PLOP! Something in the commotion of that sound breaks through my tension better than a visit to a psychologist. If a second frog jumps, I'm totally absorbed. That frog sound somehow transforms gardens into environments. It's natural magic for you to experience with your water garden. I won't go on about the thrill of having spring peepers right outside your door, but they did appear this past spring. Goldfish are great and I've seen koi ponds that take your breath away. But, me? At this point I'm definitely a frog man.

My two-year-old pond has given me, if it is possible, more than two year's worth of pleasure. The best part of the whole venture is experiencing it all so close at hand. My water garden is certainly not Lake Michigan, nor is it an ecologically significant body of water. I won't, however, discount its effect on my personal well-being these last two years.

Henry David Thoreau spent three years in the 1840s staring at Walden Pond. He learned about himself and was inspired to expound on human traits. In the 1990s, I stare at my garden pond, watch my frogs, savor the blooms of my waterlilies, and relax. In *The Pond Book*, Valerie Porter notes, "They say that those who live near water are calmer, more at peace with themselves, soothed by magical ions and inspired by their musings." It seems to have worked for Thoreau. I know it's working for me.



Dave Thompson was born in Wichita, Kansas, and graduated from Kansas State University. He was a VISTA volunteer in Flagstaff, Arizona, and worked with Mathison Nursery in Madison, Wisconsin, before moving to Delaware in 1977 to join the Horticulture Department at Longwood Gardens. Dave is currently Longwood's coordinator of Continuing Education and In-service Training.

Country Pond Construction: A Cautionary Tale



by Richard L. Bitner

Let the pond builder beware . . . and build anyway.

Traditional country life was impossible without a pond. The homesteader depended on the pond for water for the livestock and for an irrigation source during droughts. Ice was cut from the frozen pond with special tools and used for cold storage during the warm seasons. Runoff water turned the wheels to grind flour and to run sawmills and knitting mills. Today's country pond is often used only for recreation — swimming, fishing and water gardening — and to attract wildlife.

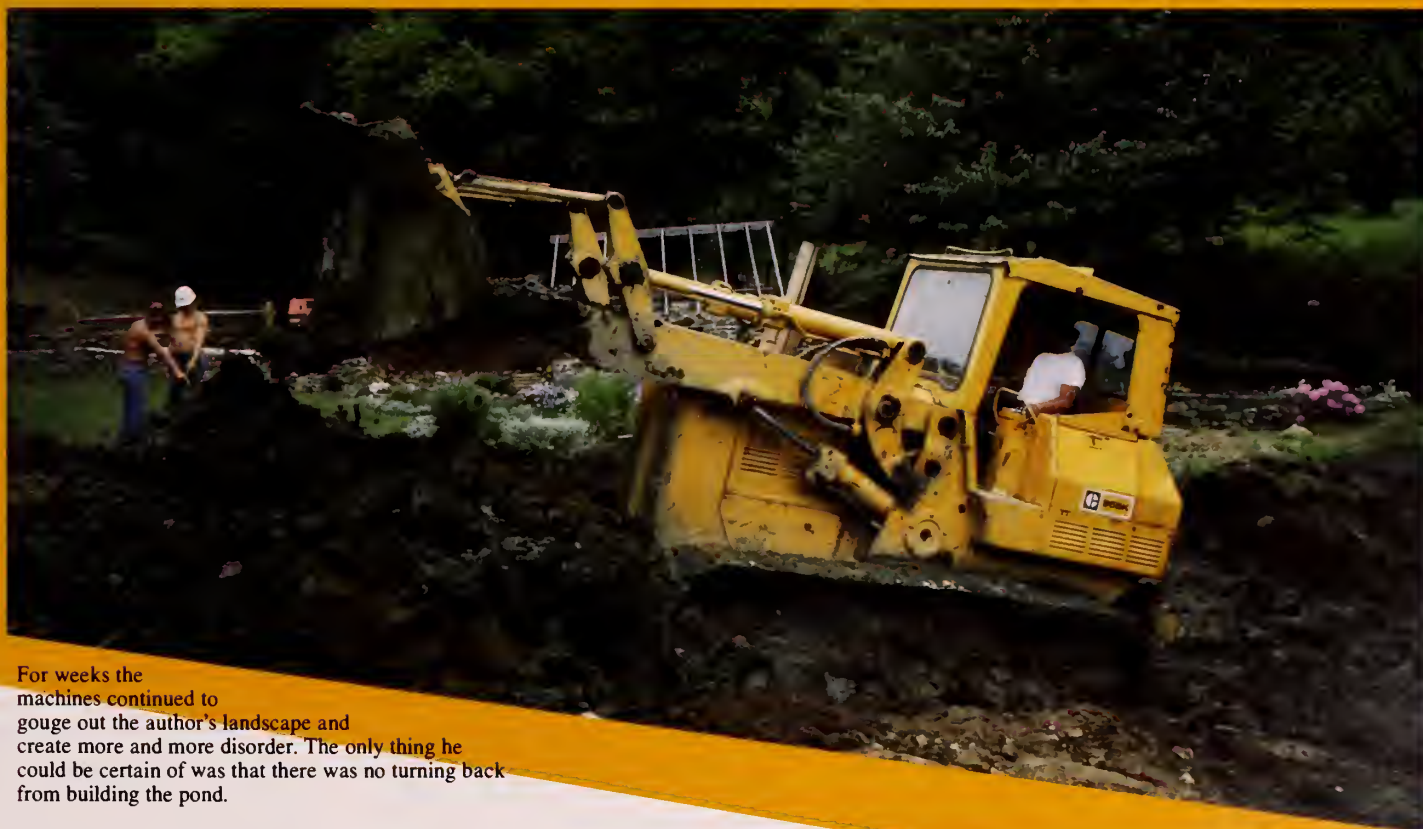
I live and garden on 12 acres of rich rocky soil on an old dairy farm in rural Lancaster County. When I bought the farm over 15 years ago it had at the foot of the property one rather large pond, which had been there for many years serving as a place for wildlife to drink, a stopover for migrating water fowl, a source of water in case of fire, and a home for blue gills and snapping turtles. The pond is unfailingly fed by springs from several directions and is visible from the house though not from the township road. Ideal. Enough. *One would think.*

The problem was (and in this case, it actually

was an opportunity) that the primary spring is located near the house at the head of the property and as it flowed through the derelict springhouse and down away from the house to the distant existing pond it created numerous large gullies and boggy areas full of brambles, dying willow trees, and multiflora rose bushes.

Since I was still a beginning gardener and thought I could easily impose a controlling hand on the landscape, it seemed only reasonable to create some additional "water features" by digging out ponds while removing all the undesirable overgrowth. I needed only to find some contractors

photo by Richard L. Bitner



For weeks the machines continued to gouge out the author's landscape and create more and more disorder. The only thing he could be certain of was that there was no turning back from building the pond.

The fact is a pool, not an easy thing to build and get going — is of all things in the garden the hardest of all to keep in decent order.

Reginald J. Farrer, *Alpines and Bog Plants*, E. Arnold, London, 1908

Country Pond Construction: A Cautionary Tale

with heavy equipment that had done this sort of thing before, tell them where I wanted the ponds dug and then connect the ponds with quaint little streamlets. *Sure.*

My contractor with the degree in fish management put fish in as soon as the pond filled. They all died. It is better not to stock the pond with fish until the second year.

Most of this story you don't want to hear. It's like the part between the 'before' and 'after' pictures on those facelift advertisements. And halfway through you realize you picked the wrong surgeon. If it has occurred to you to install a pond on your country property, take my advice: put a comfortable chair in the shade of a yellow-wood tree and do a needlepoint pillow. It's a creative use of your time, it'll last forever, providing a place to rest your head and think about the pond of your dreams, and you'll still have money in the bank to spend on more rational projects.

The first thing the pondmaker should do is contact the Natural Resources Conservation Service. Their field office will be listed in the phone book under the U.S. Dept. of Agriculture. They can provide soil maps, general advice and a list of experienced contractors. The County Conservation District, delegated by the Pennsylvania Department of Environmental Protection, needs to review for adequacy the erosion and sedimentation pollution control plan generated by the contractor. They will also advise the pondmaker of potential problems from the upland watershed and any wetland implications the project might involve. Permits from the state are often required.

The basics: water, soil, site

Most farm ponds are either dug holes or are constructed on a slope with a dam. Since I live on sloping terrain the soil removed from excavating the nuisance boggy areas could be used for building the dam on the downslope. Before deciding the size and type pond, one must have a source of water and appropriate soil. A running stream nearby or a spring that can be channeled to a downhill pond site is ideal, though I had a neighbor who drilled a well to provide a flow of water for a small pond.

I could be confident that I had plenty of water. My spring continued to flow even



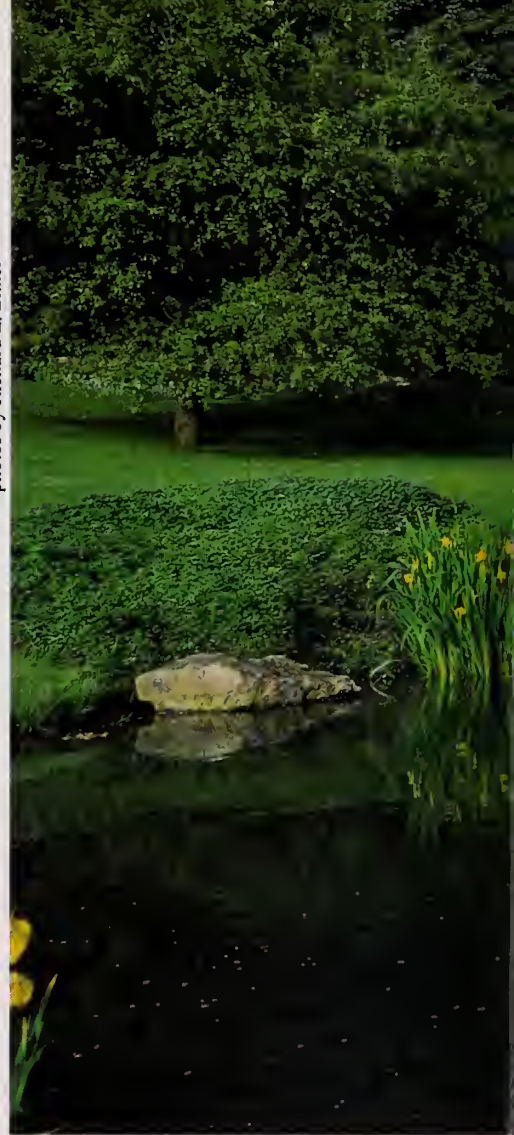
Springhouse area before reconstruction.

through droughty Augusts and after all, hadn't the spring house been said to date to 1708? At least with the water source I had no problem. However, even a swiftly flowing spring does not ensure a full pond if the soil is excessively porous and will not hold water. Clay, silty clay or sandy clay soil is the best for pond construction. Try testing your soil by pressing it into a ball. Good clay soil will hold together in a lump. *My soil is rich and very rocky. No clay.*

Next one must find a skillful backhoe operator with pond-making experience. Find out who constructs most of the ponds in your area. Check out area ponds that you admire and talk to the owners. When dealing with the contractors be sure to establish who will be overseeing the project and demand they be present every day. Find out if they have equipment suitable for working in boggy terrain. Do they maintain their own equipment? How long have their backhoe operators worked for them? Does the manager attend seminars offered by the County Conservation District to remain abreast of current environmental regulations? Do they understand that your house and pond are only incidental to your garden; will they respect and protect your plants? *I did none of these things. I hired a friend-of-a-friend from three counties away who had never worked in my area.* I did deal with the owner whose firm name included the word 'pond' and he had a degree in fish management. He spoke with great authority, usually responding "No problem, don't worry." It turned out he had only two regular employees and a few occasional ones who sometimes showed up. Much of the equipment was rented and poorly maintained. He took each question as an attack on his authority, and he ran over my *Parrotia persica* the first day. By the second week another backhoe had to be rented to pull the first one out of the mire and a *Diospyros virginiana* was coppiced.

For weeks the machines continued to

photos by Richard L. Bitner



gouge out my landscape and create more and more disorder. The only thing I could be certain of was that there was no turning back from the project. It was only after two months, consultations with an attorney, opinions from a reputable pond builder, and numerous additional misadventures that I was able to break the contract and hire another outfit to finish the job.

It's a good idea to dig your pond during the driest season of the year in case diversion of the main source of water is necessary. *My ponds were started in April. The bulldozer was lost in the mire the second day.*

Some further advice on siting: Do not place the pond where the collapse of the dam could cause loss of life or injury to people or livestock or damage to buildings or highways. Be sure to determine that there are no buried pipelines or cables through the proposed site and don't put the pond under power lines. My skillful backhoe operator shredded my phone line the first day despite the parade of little orange flags. Don't believe a pondmaker who claims he can compensate for porous soil



The formerly derelict springhouse with its faux roof is reflected in a pond surrounded by lush plantings designed to encourage wildlife. The many underground springs keep the water level constant in the property's five ponds throughout the seasons.

by adding chemicals. Your best chance for success in sealing a leaky pond is by trucking in clay soil from offsite.

Additional advice

As the dam is constructed, pull out and remove all the stumps and roots. As the rim or the pond is made higher the weight of the backhoe will pack down the earth making the dam watertight.

Some advisers claim an overland spillway is preferable for a large pond over a vertical drain with underground plumbing, which is more expensive to install and more likely to leak. An overland spillway will be satisfactory if the pond is matched to its watershed. A vertical drain pipe, on the other hand, will maintain a steady waterline if the incoming water flow is heavy part of the year and avoid the problem of spillway erosion.

A bottom drain is sometimes installed with a flap valve or a chain to permit controlled draining of the pond. Any pipe through a dam creates the possibility of leakage around it. Eight- to 12-in. pipes are

advised for small ponds, often with the larger diameter at water level and narrowing to a smaller size. The pipes should be made of plastic, iron or steel; anti-seep collars are a must. They should be sited away from the inflow area to avoid turbulence and be close to shore for easy cleaning in case of clogging. *I installed all vertical drains. My original builder used pipes much too small for my late winter flow and provided no means for bottom draining my ponds.*

Had I done more homework before constructing my ponds I would have noticed the advice against planting trees on pond dams. The reason is that their roots can disturb the watertight seal and the uprooting of a mature tree in a storm can disrupt the entire dam. Furthermore, deciduous trees and large shrubs along a pond embankment will litter the pond with leaves. On the other hand, how can one take great photos of the pond without some trees in fall foliage reflected?

The shape of your pond will be largely dictated by the terrain but given a choice

make your pond irregular in outline. Nature doesn't make perfectly round ponds.

You want your pond to be deep-dug and steep on the sides. The slope of the basin underwater should be 2:1 or 3:1 to discourage weeds and algae. If the pond is to be used for swimming, one can install a dock or carve out a gently sloping beach and fill it with sand to prevent growth of vegetation. You want a minimum of 5 ft.-6 ft. of water in your pond. Some builders let a finished pond basin sit for several weeks to allow the sun to bake and seal it. *No new pond owner has that restraint however.*

The problem of leaks

Leaks are the constant headache for the owners anxious to install fish and irises. The location of the leaks is often difficult to find and the reasons can vary from construction errors to the soil conditions. I found one leak by noticing unusually tall grass on one bank nourished by the extra water. Tree roots allowed to remain in the dam during construction eventually rot and open up leaks. New ponds often take time

Country Pond Construction: A Cautionary Tale

to seal; small leaks should be ignored for a season or two. In time the settling sediment and the weight of the water will help provide a seal. Some ponds will fill up during the wet season and drop down during periods of drought. Occasionally a newly constructed pond has to be drained completely and the basin lined with clay. The clay needs to be mixed with the basin soil and packed again. Sometimes bentonite, a natural clay sealant that swells 20X when wet is mixed in. My 'don't worry, no problem' contractor simply dumped it on the surface of a leaking pond. This does not work.

A small basin dug in the inflow stream just above the pond can catch silt and prevent some of the pond sedimentation. It can be cleaned out periodically without disturbing the pond. This I did and the silt makes splendid garden soil. However, the flows are so fast through my ponds that this has not been a solution to the long-term maintenance problems.

Pond maintenance

The expense and problems of pond husbandry do not end with construction. Newly dug ponds require time to achieve balance on the pH scale. Time will take care of this; the seasonal inflow of nutrients mellows pond water. My contractor with the degree in fish management put fish in as soon as the pond filled. They all died. It is better not to stock the pond with fish until the second year. Water clarity and health of fish and waterfowl depend on vigilant maintenance. Periodic responsibilities include erosion and weed control, spillway repair and cleanup, and repairing leaks that can occur even years after construction. Most of the problems occur in the spring because of the damaging effects of flood water. Trash clogs the drains, pipes crack, spillways and berms can be undermined. Typical problems I've encountered in the summer include overgrowth of aquatic vegetation and algae, low water levels and dead fish. The answer to the algae problem is not dumping buckets of chemicals into the pond but proper pond construction at the beginning. Steep banks discourage seeds and algae. The water heats up less easily and the steep edges prevent weeds from getting started. Fish and waterfowl are important for pond maintenance. It's been claimed that a large carp will ingest up to 10 pounds of algae, moss and weeds in a season. My swans have been effective in controlling underwater vegetation. Sure, and the water lilies too.

Other things that contribute to algae

photos by Richard L. Bitner



Farther down the sloping property, a gazebo overlooks an intermediate pond fed by the overflow from the springhouse pond above it. Pondsides plantings include giant reed and maidenhair grasses and black-eyed susans.

problems are high water temperatures or a watershed above the pond from cultivated farmland adding manure and chemicals to the water. Frequently the pond water will be turbid after heavy rains. In the fall decaying leaves should be raked from the shallows when possible. Organic matter on the bottom burns up oxygen in the water as it decays. Additionally, fish are deprived of oxygen in the winter if there's poor fresh inflow, overcrowding, and low light levels under the ice to stimulate photosynthesis. At least five feet of water under ice is recommended. One can keep a patch of ice cleared to open up the bottom of the pond to sunlight for oxygen production. Yeah, sure. Some pond owners keep surface fountain aerators running all winter to avoid freezeover and guarantee fish plenty of dissolved oxygen.

It is not unusual for ponds to require drawdown and cleanouts of silt every five to 10 years especially if the ponds are not well constructed. This is a nightmare not to be imagined.

Musk rats can sometimes burrow in a pond dike and their tunnels cause emptying of the pond. Don't encourage this bit of wildlife; it's best to trap the animals.

Planting the country pond

But one of the best reasons to have a country pond is the opportunity to grow moisture-loving plants and to attract wildlife. Wildlife will not appear at a pond that

is neatly manicured on all sides. Stretches of brush or introduced plantings offer cover and food.

Selection of plants for around the country pond should be thoughtful. One wants plants that will be attractive but not too aggressive. They should not need supplemental nutrients, which would threaten water quality. The choice of plants will be different if one uses the pond for swimming rather than raising fish. Another consideration is that the most successful ponds are in areas of clayey soil, which few plants prefer.

Daylilies are my favorite pond-bank flowers. They have held a steep bank for me and don't overrun the shoreland. I simply transplant the naturalized *Hemerocallis fulva* that grow all along the rural roadsides. The orangish flowers are long lasting and make bright reflections even on overcast days. Iris is another easy pond plant. I have gigantic clumps of *Iris pseudacorus* around all my ponds and also have small clumps of *Iris versicolor* for a more refined touch.

Two rather aggressive plants suitable for colonizing a steep clay bank are the variegated grass *Glyceria maxima* and the wonderful dwarf bamboo *Sasa veitchii*. There are many options for the non-clay areas. One of my favorite plants for pondsides is the water forget-me-not *Myosotis palustris*. It will seed itself all along the edge of the pond and will rebloom throughout the



Iris pseudacorus at pond's edge beautifully frames the koi.

summer. Lupines like wet soil and will self-seed also. I've had great success and pleasure from mints in the sunny areas and for the cooler, shady areas: hosta (esp. *Hosta sieboldiana elegans*), astilbes (including *Astilbe chinensis* 'Pumila' and *A. chinensis* var. *taquetii* 'Superba'), rodgersia and ferns (esp. *Matteuccia struthiopteris*). This year I'm trying *Salvia uliginosa*, but I'm not sure it will survive my Zone 6 winters.

Cattails are a nuisance and should be removed when they appear from the sky as they did in a boggy area. Don't even think about planting *Phragmites communis* the common reed grass, or *Petasites japonicus giganteus*, the giant butterbur. Petasites is so wicked it will push through a stone wall. Never transplant the beautiful but noxious loosestrife, *Lythrum salicaria*, from the wild.

I have enjoyed any of the *Miscanthus* grasses planted at water's edge as well as the giant reed grass *Arundo donax*. Water lilies are, of course, a natural for the large

pond but can get out of control if planted in shallow areas. It's probably better to plant them in containers submerged near the edge of the pond. They provide wonderful cover for fish and help oxygenate the water. If you discover all the leaves sheared off one morning you have a muskrat.

Shrubs that enjoy growing by my ponds include *Itea virginica* 'Henry's Garnet,' yellow-stemmed dogwoods (*Cornus sericea* 'Flaviramea') and red-stemmed dogwoods (*Cornus alba* 'Sibirica'). Annual black-eyed susans will march along the bank's edge as they self-seed. Newly planted tubers, bulbs, and roots planted underwater at pond's edge need to be anchored since they tend to float up out of the mud. The many underground springs on my property keep the water level constant in my ponds even during droughty Augusts but remember: if your pond level varies during the hot season anything planted around the edge will be left to dry out in the cracked soil.

Forget about those romanticized calendar pictures: a weeping willow is the worst plant next to water because of the mess it creates. Trees that I have growing in wet areas include the swamp cypress (*Taxodium distichum*), dawn redwood (*Metasequoia glyptostroboides*), both deciduous conifers, and the evergreen *Cryptomeria japonica*. A tough tree that will tolerate any conditions is our native *Aralia spinosa* or the elegant variegated Japanese *Aralia elata*. The bold-textured leaves are nice next to water *and the deer don't touch them*.


It's nice to select plants with seed pods and fruit to attract birds and the more tangled the mass of plantings is the more the frogs and toads will multiply and survive their predators. *Of course the tangled mass is ideal for water snakes too — but they don't have any teeth.*

Geese and ducks will help control any algae and weed problems, although their fecal matter will contribute to nutrient buildup. Wild waterfowl can cause some weed problems by carrying the seeds in on their feathers or digestive tracts. I have maintained swans on my ponds not only because they look pretty in photographs but because they are large and territorial and do not permit visiting busloads of Canadian geese which tend to be very messy. *Of course, my swans also attack my farm tractor.*

Having a pond and water gardening is a joy, but there should be no denying that ponds are difficult to build and can be cruelly hard to keep in order and control. In view of all my cautionary notes is country pond-making worth the expense and headaches? *Yes! Unquestionably.* Realtors claim that the value of a completed pond is triple its construction cost. But the real value is the sound and movement of the water, the pleasures of wetland plants and the surprises of sharing the garden with the wildlife that appear. My country garden would not be complete without my ponds.

If I had read this book first, I would have avoided most of the problems I encountered: *Earth Ponds The Country Pond Maker's Guide to Building, Maintenance and Restoration*, Second Edition, Revised and Expanded by Tim Matson, Countryman Press, Woodstock, Vermont, 1991. (Available to members through the PHS Library.)

Richard L. Bitner is a physician and a teaching assistant at Longwood Gardens. His country ponds are part of his garden in Lancaster County. He serves on the PHS Members, Gold Medal Plant Award and Publications committees.

A photograph of a garden with a wooden bridge, a stone waterfall, and a pond. The bridge is made of wood and has a railing. Water flows over a stone waterfall into a pond. The pond is surrounded by various plants, including lily pads, tall grasses, and flowering plants. The scene is set in a back yard.

Through a profusion of *Acorus* and pink *Lythrum* peeks the Weiss's waterfall and custom-made bridge, part of their suburban aquascape set in a back yard 15 ft. x 100 ft. The upper pond flows from behind the bridge. At the center of the large lower pond rests the robust *Juniperus procumbens* 'Nana'.
photo by Eric Goldenberg



Where Bigger Isn't Better

The Birth of a Suburban Aquascape

by Olivia Lehman

As darkness falls on a cool April evening, Cindy and Fred Weiss leave water's edge and head indoors, talking. They are telling the story of their pond. The glass-encased sunroom of the couple's Merion home is large and dramatic, with high ceilings that feature skylights. A coffee table covered with books about water gardening affirms the Weiss's claim that 10 years ago, after visiting the Philadelphia Flower Show for the first time, their lives changed. And all because of the emergence of a little water hole breathing outside in the dark, a man-built ecosystem about to burst into its ninth season of spring fruition.

The aquascapes that abounded in the 1986 Philadelphia Flower Show set Cindy and Fred thinking. They already owned a 15-ft. square concrete swimming pool and so were open to the idea of caring for a body of water. Yet the small 40-year-old pool had become more an eyesore than a boon; the family was ready to transform its 50 ft. × 100 ft. backyard into a water garden.

Construction was rough. Four months after bulldozing their pool, and laying the foundation for the new pond, the Weiss's contractor disappeared mysteriously, leaving the family adrift in mud. Cindy and Fred soon cast their frustration aside, however, and built the remaining one-third of the aquascape themselves, with their two children on hand to observe the process. Cindy recollects that "we quickly stepped into our contracting shoes. Before long we had filters, flagstone patios, lots of shrubs and lots of rocks." After 3½ months of working on their own, the Weisses finished the pond in October of 1986.

Formed at its base with a cement called gunite*, the pond is comprised of two sections connected by a small waterfall: a 1,000-gal. upper level measuring 12 ft. × 12 ft., and a 3,000-gal. lower level measuring 14 ft. × 22 ft. The pond's shape is softly curved, naturalistic. An arched wooden bridge, built in Lancaster County, crosses over the water between levels. Its prominence and solidity do not diminish the ethereal beauty of the pond. Rather the bridge encourages intimacy, allowing peo-

ple to take a closer look at the pond and its inhabitants. The Weisses have learned over the years that hardscape elements like bridges, patios and colonnades are of crucial importance. They are markers of a human touch, and serve to enhance an observer's enjoyment by offering comfort, and a sense of inclusion in the landscape.

As is the case with any garden, the creation of an inviting and healthy aquascape is no simple achievement. Cindy and Fred recall the rocky scene they beheld upon the completion of their pond 10 years ago. Stones hand-picked from a quarry in Media formed a decorative and structural border around the water's perimeter and were adroitly piled between upper and lower pond to form a waterfall. Goldfish bolted through waters edged with azaleas and evergreens. Yet the couple knew that somehow they had not created a true water garden. Clearly, the pond needed more plants to soften its rocky appearance.

Cindy and Fred hit the books. Over the next few years they began to gain the horticultural expertise that would enable

them to create the undulating waterscape they envisioned. It was during these first years of fashioning their water garden that the Weisses sought the advice and companionship of other enthusiasts. One organization in particular, the Delaware Valley Water Garden Society, remains an important part of their lives today. The club, which meets monthly, caters to the needs of both the experienced water gardener and the beginner. Club members hold meetings in their homes and gardens, and these evenings are enjoyed as social events as well as gardening pow-wows. Cindy and Fred have both held leadership positions in the group.

Those years of learning paid off for the Weisses. The pond is thriving. In early spring a frog can be heard blurring his comical chant into the night air. Leopard and bull frogs make their homes in the pond. They will soon be joined by a throng of tadpoles who have been enjoying a comfortable infancy within a properly ac-countered tank in the family's basement. Life in the pond won't be so cushy. Cindy



Waterlilies and umbrella plants lend a tropical air to the suburban waterscape.

photo by Eric Goldenberg

*See concrete note on page 33.



The koi population swims through clear waters. With the health of the fish in mind, the Weisses use no herbicides or pesticides in their garden.

acknowledges that the frogs can be wildly aggressive. They have even been known to prey on small birds who range too near the water.

One suspects that the frogs were not quite so brazen when two large and rather exotic species of bird made pitstops at this unlikely location — a suburban turf one mile west of City Line Avenue. Attracted to the water's reflection, both a kingfisher and a blue heron dropped in on the Weisses during periods of migration. At night raccoons and cats prowl and by day hummingbirds savor the nectar provided by plants like trumpet vine and rose of sharon.

Cindy and Fred are charmed and fascinated by the pond's little dramas. As a teacher of biology, Fred possesses special insight into the ecosystem's workings. And it becomes clear after hearing them speak of the animals who enliven their backyard, that the Weisses have formed a true bond with the group of colorful koi fish who live in the waters. These lovely carp species are specially bred to be admired from above, will grow up to 24 in. long in a pond the size of the Weisses, and can live more than 30 years.

The Weisses and their children sense that the fish truly know them. The koi eat

from the family's hands and are appreciated as individuals, each one bestowed with a different name — Kent, Desi, Gigi. Shamu is the pampered baby, born and raised in the Weiss's garden. During winter the fish live at the pond's bottom. A special floating heater forms a hole in the ice, allowing the methane gas emitted from the fish's waste to escape, and oxygen to enter the frigid den.

With help from experts, books, and other enthusiasts, and enriched by travel, the Weisses have created and continue to nourish a magnificent waterscape. Two nearby families, inspired by the Weisses,

The Saga of Three Filters

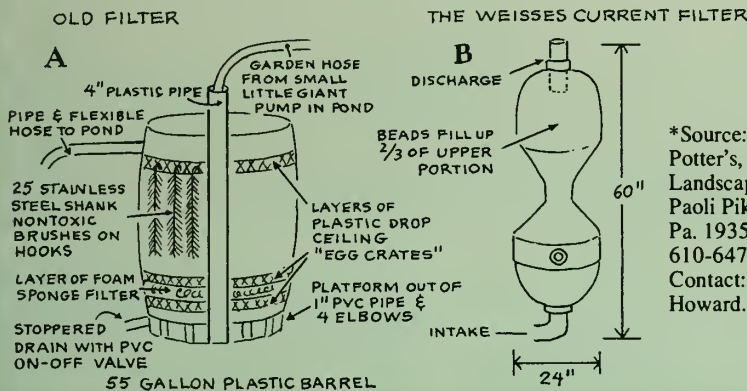
On the advice of a reputable fish hobbyists' supply source*, the first filter we installed in our new pond was a basic pool filter using sand as the medium. Water exited the pond via a built-in skimmer with plastic sponge foam located in the coping area of the lower pond and was pumped through underground tubing to return into the upper pond, thus providing flow for the waterfalls. This type of filter proved inadequate for the needs of a well-stocked water garden and was always clogging up. Aerobic bacteria needed to break down the harmful ammonia and nitrite wastes of the fish into unarmful nitrates could not survive in that environment, and our electric bill was astronomical. Instead of pulling the wastewater that settles in the bottom of the pond, we were removing cleaner water from the top. A change was in order.

Our second effort in filtration was a big improvement (see illustration A). This biological filter was set in a 55-gal. open plastic drum with 24 special brushes that were made in England and resemble giant baby bottle brushes. In this set-up, the brushes hang from a grid sandwiched

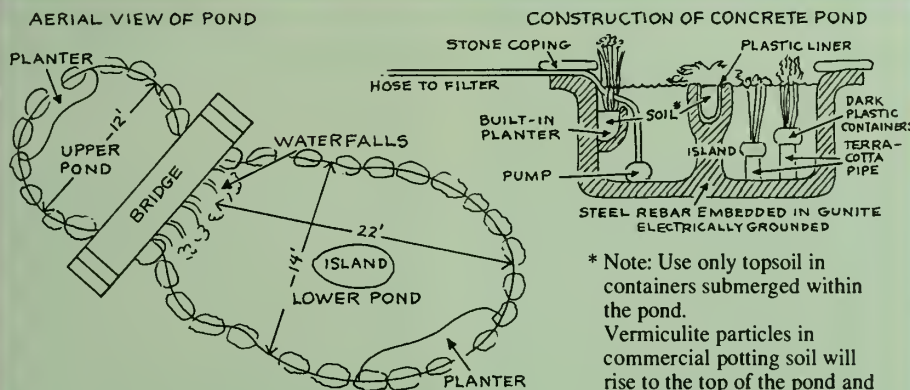
between layers of sponge material. The sponge provides mechanical filtration to remove particles that float in the water and the brushes provide increased surface area for the aerobic bacteria to flourish. This was fine while our fish were still relatively small, but problems arose as they grew and their metabolism increased exponentially. In addition, as the flow through this filter was rather slow, we still needed additional pumps to supply the waterfalls and to properly oxygenate the water.

Our new filter is the state-of-the-art Bubble Bead Filter II (see B — it comes in both a smaller and larger version). Designed to meet the hefty needs of fish farming, it employs plastic beads to encourage the aerobic bacteria to do their thing and has a built-in skimmer basket and mechanical filtration. It is easy to backwash and moves the water rapidly over the falls without any assists, yet is energy-efficient and quiet. The pea soup of algae that had accumulated before its full installation was cleared in less than two days. We are in love!

Cindy Weiss



*Source: The Ponds at Potter's, Potter's Landscape Co., 359 Paoli Pike, Malvern, Pa. 19355; phone: 610-647-2926. Contact: Donna Howard.



* Note: Use only topsoil in containers submerged within the pond. Vermiculite particles in commercial potting soil will rise to the top of the pond and create problems for the filters.

*Concrete is not often used today in creating ponds because plastic liners are inexpensive and easier to install. The advantage of concrete is its durability. The Weisses also suggest that concrete ponds may generate less algae than ponds formed with plastic liners.

have built ponds of their own, and neighborhood children drop by often to feed Cheerios to the koi and take in the magic of the place.

In addition to the waterscape, Cindy and Fred's garden features a perennial border brimming with lythrum and dahlias, a clematis and hyacinth bean-covered colonnade, terraces blanketed by echinacea and salvia, a shade garden and a gorgeous Victorian greenhouse.

Miraculously, all of this horticultural abundance, and the family's Tudor-style home as well, exist on less than one-third of an acre. Self-described as "two Philly kids from rowhouses," Cindy and Fred seem continually delighted by their gardening life. They share plants and pleasant hours with friends from the Delaware Valley Water Gardening Society and usher sweet scents and curious sounds into their neighborhood. Here in Merion is proof that a garden of almost any size can be fashioned into a true oasis under the care of devoted tenders.

Plant List

- Acorus calamus* — sweet flag
- Athyrium nipponicum* — japanese painted ferns
- Cyperus alternifolius* — umbrella plant
- Iris ensata* — white iris
- Iris 'Black Gamecock'* — black iris
- Iris fulva* — red iris
- Iris pseudacorus* — yellow iris
- Juniperus procumbens* 'Nana' — juniper
- Lemna spiridela* — duckweed
- Lythrum* spp. — loosestrife
- Marsilea mutica* — water four-leaf clover
- Myriophyllum aquaticum* — parrot's feather
- Nymphaeoides peltata* — floating heart
- Pontederia cordata* — pickerel rush
- Sagittaria* spp. — arrowhead

Delaware Valley Water Gardening Society

Cindy and Fred Weiss are happy to answer questions about water gardening. Fred is now membership chair of the Delaware Valley Water Gardening Society and Cindy is on the board of directors. They can be reached at (610) 667-7545.

Olivia Lehman writes and gardens in Narberth with her husband Fran and daughter Julia Eve.



Tinicum: A Wetland in Our Own



by Kathleen A. Mills

On the edge, where water mingles with land, rich, changing ecosystems known as wetlands exist. Wetland communities include: Riparian forests, swamps, bogs, wet meadows and bottomland hardwood forests. Each, a special mix of water and earth, creates a unique habitat for native plant life, migrating birds, from chickadees to canvasbacks and other wildlife. We fortunately have a large, fresh water tidal marsh living at the edge of Philadelphia.

Many years ago the area that lies between the Delaware and Schuylkill rivers held an estimated 6,000 acres of fresh water tidal marsh, supporting a wide selection of plants and wildlife. The growth of Philadelphia encroached on this natural landscape, replacing marsh, meadow and forest with homes, businesses and roadways. Today a glimpse of our early landscape is revealed at the John Heinz National Wildlife Refuge at Tinicum. The refuge, touching Philadelphia and Delaware counties, covering 1,200 acres, exists in the midst of a modern city, busy with the business of caring for plant and animal life.

Why are wetlands important?

Wetland habitats provide food, water and shelter for many types of wildlife, the stars, of course, migrating waterfowl. Places to stop and refuel are essential to birds as they travel south each autumn and north each spring. The silt found there is rich in nutrients for plant and animal life. Safe and well-stocked nesting sites ensure the continuation of species. Wetland communities are also important to humans. Providing protection from floods and erosion, wetland areas absorb water run-off from our heavily hard-scaped cities. Wetlands also act as an active pollutant filter, protecting ground water. (See *Green Scene*, Wetlands: One way to contain and treat pollution, Jeffrey Lapp, July/August, 1991, Volume 19, No. 6, Pg. 32.)

The John Heinz National Wildlife Refuge at Tinicum

In reaction to the 1970 Migratory Bird laws and the Clean Water Act, 1 Congressional mandate created Tinicum refuge. Administered by the federal Department of Interior's Fish and Wildlife Service, the refuge opened in 1972, to conserve and rehabilitate habitat and engage in environmental education. The long-range plan at Tinicum is to restore 231 acres of the 1,200-acre site to wetland. Due to federal funding restrictions Tinicum enrolls the

support of local businesses and communities to help with and expedite wetland restoration. The first 18 acres restored were the product of such inspiration and lots of hard work.

The restoration project

The Blue Route (I-476) was a road 40 years in the making. Despite opinions on the placement or the existence of this highway, one positive thing came from it, an 18-acre wetland restoration site at Tinicum.

Federal law mandated that wetland areas, destroyed because of Blue Route construction, be replaced: no net wetlands loss. Although the ideal is to recreate on or near the construction site, this was not possible in heavily populated Delaware County. Of the 26 acres needing restoration only 10 could be accommodated along the highway. Inspiration! Tinicum. After five years of planning, 18 acres were slated for restoration at Tinicum.

Successful restoration addresses the hydrology (water sources and flow), soil and vegetation of the site. In 1991 work began on the highly visible site bordering I-95 South, just south of the Philadelphia International Airport. This area, once wetland, had been filled in with dredge from the bottom of the Delaware River. The ground level needed to be reduced 4 ft. - 5 ft. to reintroduce water, plant and eventually animal life. After five years of planning, the project took only nine months to execute.

Tinicum Marsh Planting List

Woody Plants:

Acer rubrum — red maple
Ilex verticillata — winterberry holly
Lindera benzoin — spicebush
Sambucus canadensis — american elderberry

Herbaceous/Aquatic Plants:

Carex lacustris — sedge
Panicum virgatum — switchgrass
Peltandra virginica — arrow arum
Sagittaria rigida — duck potato
Zizania aquatica — wild rice

A partial listing of plants from a list by Patricia Quigley, president, PAQ, wetland designs for John Heinz National Wildlife Refuge at Tinicum.

photos by Bill Buchanan



Heavy equipment at the restoration site had to tread carefully through the muck to excavate the new wetland.



Located in the shadow of downtown Philadelphia, the 200-acre John Heinz National Wildlife Refuge at Tinicum helps maintain the delicate balance between urbanization and what is good for the earth. From I-95, near Philadelphia's International Airport, most of the restoration project could be seen by passing motorists. (Photo taken in January, 1992.)

Excavation is tricky work; heavy equipment and mud are a tenuous mix. Construction began in August of 1991 and continued through the winter with completion in February 1992. Final grading left 94% of the spot elevations within 6 inches of the design specifications. No easy feat over an 18-acre site. Wetland restoration on this grand scale is still in its infancy. Each site presents special challenges. From safe disposal of excavated materials (110,000 yds. on this site) to the construction of water channels by heavy equipment operating on wet substrates, the process requires creative approaches and a co-operative spirit.

Introducing plants

Once the construction was completed and the hydrology and soils were addressed, the complex task of reintroducing proper vegetation still lay ahead. In April 1992, the first phase of planting began. A list of native plants was developed with the goal

More Reading

These books are available in the PHS Library

Landscape Restoration Handbook, Donald Harker, Sherri Evans, et al Lewis Publishers, Boca Raton, Florida, 1993.

Although a technical volume, this book is a great resource for those wanting to learn more about the how and why of wetlands.

The Natural Habitat Garden, Ken Druse, Clarkson Potter Publishers, New York, 1994.

This book is full of wonderful pictures and inspiration for the person with a wetland garden possibility.

of creating both food and shelter for wildlife.

As in your home garden, relationships between plants and their environment are delicate to maintain. In a wetland, exotic plants threaten the animals' foods of choice. Forming thick mats, they choke native species and provide no nutritional value for wildlife. Weeding on a grand scale is no easy task. *Phragmites australis* and *Lythrum salicaria* (purple loosestrife) are a problem to control and were important considerations during the restoration.

Plantings were done in small communities, scattered through the site. These planting cells were monitored not only for the successful growth of the introduced native species but also the control of exotic invaders. Well-planned spraying controls *Phragmites*, and high water elevations help check *Lythrum*. These exotics provide an ongoing maintenance problem at this site and other wetland areas. New insect controls for *Lythrum* include releasing leaf



Two beautiful and unwelcome guests, a doe and loosestrife, grab our attention at Tinicum Refuge.

beetles and weevils. Leaf beetles defoliate and weaken the plant. Weevil larvae eat through the stem of the *Lythrum* working their way to the roots, killing the plant. To date neither insect has been a threat to other plant species.

Cooperation between government agencies, the community and private business made this successful project possible. The wetland is restored and native plants and wildlife have found a new haven in the midst of urban sprawl.

The management and staff of the John Heinz National Wildlife Refuge at Tinicum under the aegis of the U.S. Fish & Wildlife Service takes seriously its responsibility to rehabilitate habitat, and actively pursues projects to restore the full 231 acres to wetland. Its location, within a large city, makes Tinicum's mission more compelling and its existence more astounding. Tinicum Refuge is the largest fresh water tidal marsh in Pennsylvania and an ecological haven that serves us all. More than 100,000

visitors each year are treated to blue crab sitings, fishing, bird watching, and a natural repose in the midst of urban turmoil. Maybe it's time you paid a visit.

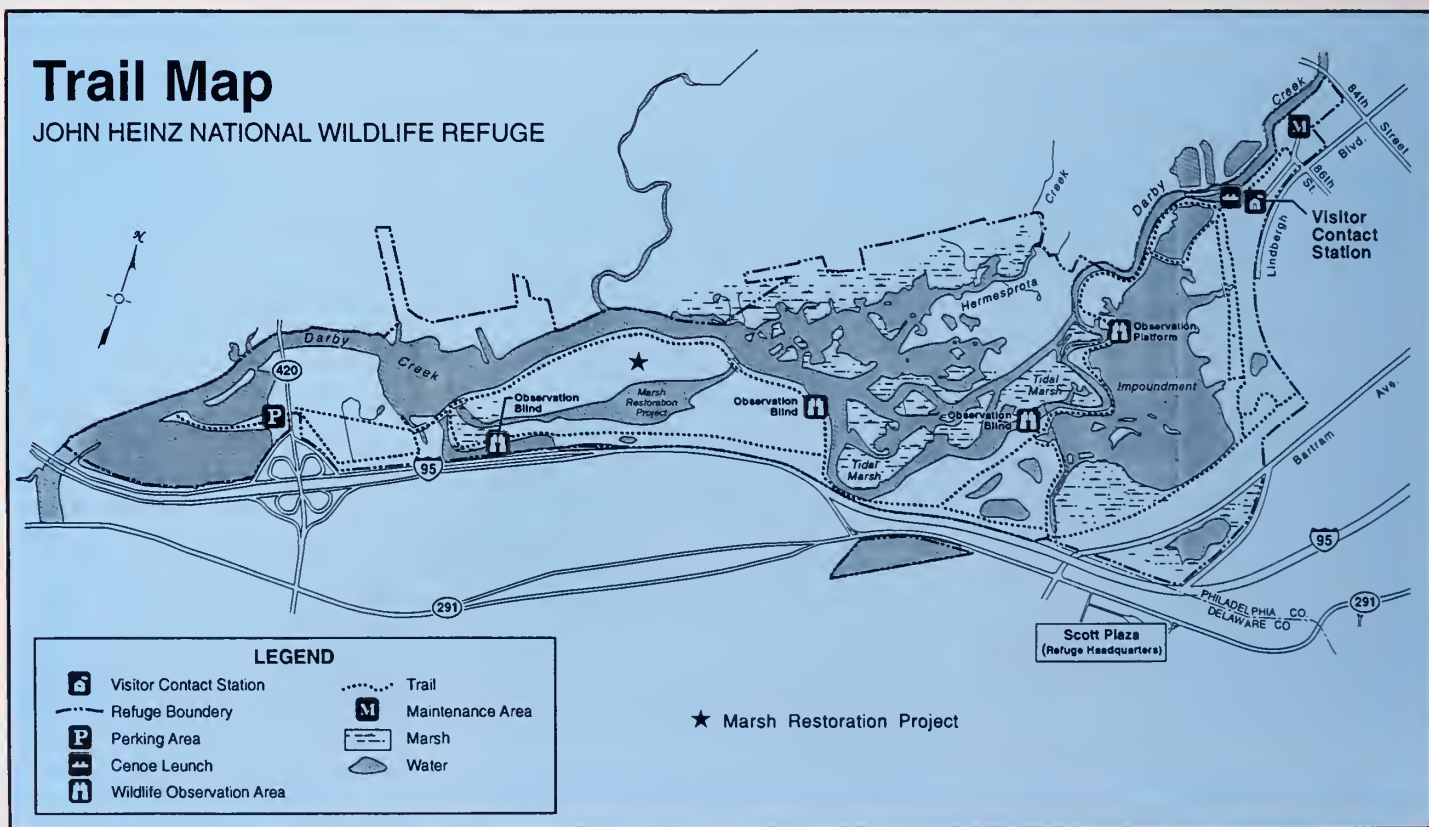
To See and to Volunteer

John Heinz National Wildlife Refuge at Tinicum maintains its commitment to environmental education. Regularly scheduled guided walks feature topics including native plants, photography, butterflies and waterfowl. Programs for school children and teacher training are also available.

Volunteers are an important part of what makes these programs at Tinicum work. Knowledgeable guides, volunteers to help with trail maintenance, special clean-up days and clerical assistance, are welcomed. Help keep this wonderful Philadelphia resource strong and healthy. Call Jackie Burns, Volunteer Coordinator at 610-521-0662.

Special thanks to Dick Nugent, Refuge manager, for his time and guidance in the research for this article

Kathleen A. Mills is Shows administrative manager for The Pennsylvania Horticultural Society, wife, mother, plant lover and bird watcher; not necessarily in that order.





A Do-it-yourself Pond with a Little Help



by Evelyn K. Seaton

The author plans and builds a medium-size pond on a two-acre site with some help from her son and a contractor.

With the addition of a pond to my garden, a summer's day now begins, coffee in hand, with a quiet morning walk through the garden, while the grass is still wet with dew, to see which water lilies have opened. I count the splashes of frogs, surprised by my presence, jumping into the pond for safety and wonder if the blue heron stopped by earlier, as he has done before, to breakfast on our fish.

In the heat of the afternoon, I rest from gardening chores by the pond and feed the

fish. They seem to know when I'm sitting by the water's edge and, one by one, they come closer for their food. Even the two baby box turtles come out from under the lily pads to compete for the tiny morsels. Once in a while, I'll catch a glimpse of one of the two resident snakes slithering across the stone or lying motionless on a warm rock.

The summer day ends with a moonlit stroll to watch the frogs sitting so still at the water's edge waiting as the lights attract

their evening meal. At night they are so intent on their work that they seem not to notice my presence.

How did all of this come about? Slowly, in my garden.

Conception of a dream

Ours is a Federalist farmhouse, built in 1835 for a working farm in Moorestown, New Jersey. Although now its purpose has changed, I've attempted to keep some of the country feeling in my garden plan.

photo by Evelyn K. Seaton



View from the bridge behind the pond looks toward the house on right and perennial gardens on left. On the upper right *Boltonia asteroides* and *Clematis autumnalis* in full bloom in early September.



Looking across pond to low waterfalls. In water on shelf are plantings from bottom left: Various hardy waterlilies; *Phalaris arundinacea* var. *picta*, (ribbon grass); *Eichhornia crassipes* (water hyacinths, floating); *Equisetum* (horsetail); and *Iris laevigata* (japanese water iris). Grasses that border the pond are from left: *Miscanthus sinensis* 'Zebrinus' (zebra grass); *Pennisetum alopecuroides* 'Hameln' (dwarf fountain grass); and *Miscanthus sinensis* 'Morning Light' with its pale graceful foliage. These grasses are all repeated elsewhere around the pond for continuity.

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I had been contemplating a pond in my landscape since our family moved here 13 years ago. At first we had several horses on our two acres, limiting my gardens to the front of the house. When our oldest daughter went off to college, her horses given away, I seized the opportunity to expand my perennial beds beyond the horse fencing and into the open pasture. In 1993 the goal of a perennial garden to stroll through was realized. With new space, thoughts of a pond in the garden crept into my mind.

Location

What was needed to make the garden complete was a resting place; a place to sit after a garden walk or, better yet, another reason to take the walk.

The pond would be close enough to the house to hint of water, enticing a visitor to walk through the garden, ending at the pond. Also, the pond would be distantly viewed from the family room and patio which, when lit at night, would also invite a

garden visit.

As I considered this location, I became more aware of the number of deciduous trees. The oaks and maples created a woodland ambiance, which I liked, but in choosing this spot for a pond, I would be breaking a primary rule: place a pond away from deciduous trees (unless you are willing to accept the maintenance of removing leaves or netting). Leaves also mean more decaying matter at the bottom of the pond and would probably interrupt passage of water into the pump intake. I opted for trees nearby.

The style envisioned

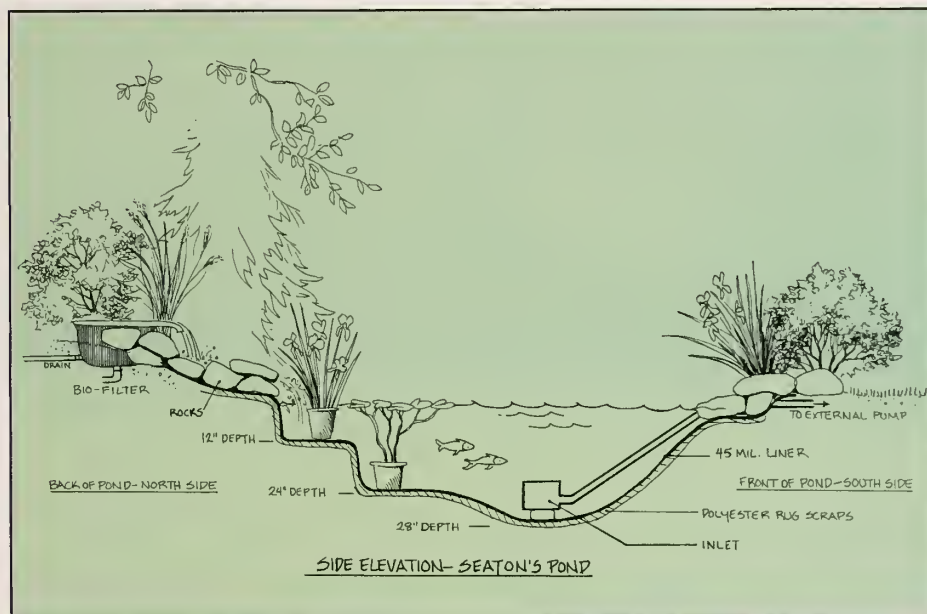
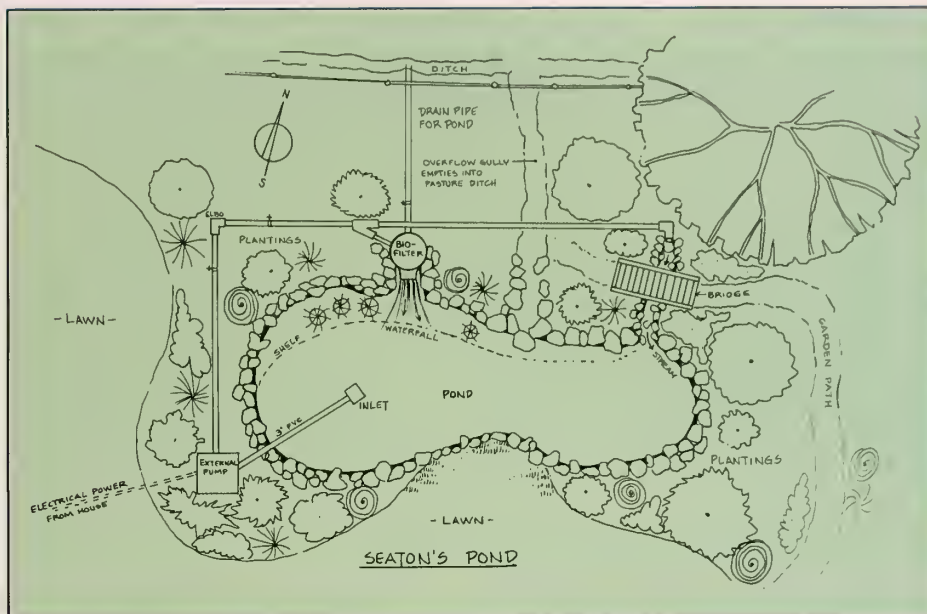
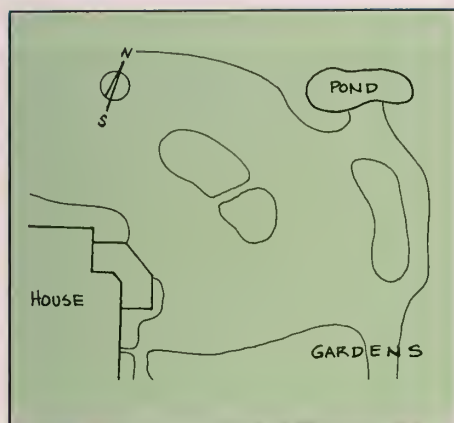
The garden called for an informal, natural pond, with low waterfalls and, maybe, a trickling stream, and a well-designed landscape plan, thereby making the pond more like nature's doing than mine.

The pond would be in scale with the garden and concealed so that some of the

water's surface would be mysteriously hidden by plantings. To accomplish this goal, the pond had to be large enough so the surrounding plants and trees wouldn't overwhelm it.

By the end of 1993 I had a vivid vision of a pond included in my gardens. I was determined to build the pond in 1994. My son, Barrette, arrived home in April of 1994 for a short stay and, with time on his hands, needed a project. Our pond was in the making.

Out came all of the garden hoses, and I started laying out my pond's outline on the ground. The backhoe arrived to excavate the pond; I was rather excited and nervous. Do we dare dig this hole? By the time we finished, it looked so big. I kept telling myself that I'd read that everyone who builds a pond wishes they'd made it bigger; I don't think I will ever say that. I was not an amateur gardener, but I was an amateur pond builder. I knew that we would now need some help.



I went to a friend, Richard Flagg, owner of Flagg's Garden Center, a nursery and landscaping business in Moorestown, New Jersey, because he's a knowledgeable pond builder. I knew that he could advise me on the mechanics: e.g. lining, proper pump, bio-filters and plumbing.

From the dimensions of my pond (26 ft. \times 17 ft. at its widest point \times 28 in. depth at its deepest point), Richard Flagg calculated the volume of water and the size of the pump needed. For my pond's volume of water, the dealer recommended an external pump with two speeds. For proper filtration the pump should be able to circulate at least one-half of the volume of water in one hour. It's usually better to purchase a pump more powerful than needed and then regulate the water flow into it if necessary. This pump was higher in price than another recommended but it had lower operating costs. Richard also calculated the size of the liner to be ordered. I decided on the 45 mil. liner, with a 20-year warranty. We ordered a 35 ft. \times 35 ft. liner and the excess was used for waterfalls, pools and a "stream."

Richard Flagg and I sited the pump and then I called in an electrician. My son rented a trench digger and dug the trench for the electrical wiring according to the electrician's specifications. It's important to have a reputable electrician do the wiring for a pond. Our electrician later returned to ground the pump when it was in place.

Richard laid out the piping that wraps around one-half of the pond, which leads from the external pump on one side to the bio-filter, planned waterfall and stream on the other side (see diagram). The stream was needed so that water would circulate completely around the pond. The evidence of good water circulation can be seen in the floating plants that slowly moved around

the entire pond in a circular fashion. Not caring for this, I use a monofilament line under the water's surface to keep them in locations of my choice.

My son had experience working with PVC piping and was able to install the plumbing. He was careful about the leveling of the pipes as they need to be on a downward slope for proper drainage when necessary. He also worked quickly when joining pipes and fittings and was sure they had a solid connection.

While waiting for the liner and pumps to arrive, we dug out the shelves around the pond (see diagram), evened the edges and checked that all of the sides were level. In leveling, we used taut string because boards were not long enough. We made approximately 2-ft.-wide shelves on two sides of

the pond and a 3-ft. shelf at the stream's entrance to the pond so that we could rest stones in the water and not just around the outer edges.

Choosing stone for edging

In creating a pond that looked like it belonged on this property I wanted to use native stone found in this area for the pond edging. Since all of the stone used on the house's chimney and foundation was stone from this property, I was familiar with the smooth brown river stone that is native to this area. I had read that it is best not to combine various types of stone if you want a natural look because only one type of stone is usually found in one location. This seemed to make sense to me since I have never dug up Jersey sandstone on this



Moving along path toward back of pond the view shows from left the evergreen christmas fern, *Iris sibirica* and beyond, the blue-gray foliage of *Boltonia asteroides* about to bloom. *Clematis autumnalis* climbs a fence post sculpture that the author attempted to copy from a garden she saw in England on a PHS tour in 1995. Waterlilies are *Nymphaea* 'Pink Perfection' and *N.* 'Firecrest.'

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property, only river stone.

A friend told me about an excavation company in southern New Jersey where she'd purchased stone; I went down and hand-picked stones and boulders. The first ton of stone was put in my driveway, a far distance from my pond. On the second delivery the driver kindly tried to get the stone closer to the pond by crossing my back pasture. He ended up stuck in the soft muck near the barn and my neighbor, who has a tractor, had to pull him out after we unloaded all of the stone.

My daughter, Marlies, moved three tons of stone across the property that day, and she still talks about it. The owner of the excavation company told me he had some wonderful boulders that I should use elsewhere in the garden; a great idea but I wonder how we would get them to the garden. I'd like boulders elsewhere to better blend the pond and garden but I plan to investigate reconstituted hollow rocks for the future.

My daughter, Marlies, moved three tons of stone across the property that day, and she still talks about it . . . I'd like boulders elsewhere to better blend the pond and garden but I plan to investigate reconstituted hollow rocks for the future.

Protective matting

Before the liner was laid, we checked for any sharp objects, stones or protruding roots on the floor, sides and shelves of the pond. Since most of the stones in this area are smooth and no tree roots were visible, we were checking for broken stones with sharp edges. For a protective matting I collected polyester rugs and blankets from my church's rummage sales and friends, plus rugs put out for trash along the roadside (being sure to check the carpets for staples). A soft cushion under the butyl

liner is important and this polyester carpeting cost next to nothing compared to 2 in. of sand or purchased polyester matting. I also used a lot of layered newspaper, as a cushion for the lining. Before the lining went in it did look like a huge trash heap.

In placing the larger stones around the pond, I used polyester stair treads cut to size under the liner and on top to protect the liner from damage from the stones. These are also less expensive than polyester matting that is sold for ponds.

Lining the pond

The butyl lining was laid across the pond and weighted with stones. We needed extra hands for this process. Several inches of water was run into it so the butyl could start to stretch into the cavity. Letting up on the weights, we started tucking and folding the liner where necessary while running more water into it. It is a process of tuck and stretch to create the least number of folds. I worried about every fold and whether

capillary action would be a problem.

Once the pond was filled we edged it with stone. In my pond the stones are set partially in the water and the liner comes up behind the edging stone and then other smaller stones are placed over the liner. I like the stones resting in the water rather than rimmed all around as it appears more natural in this setting.

For an inexperienced person, creating the waterfall took time, trial runs and patience because, although we had the water output figures for the pump, they didn't mean anything to us because we didn't know what it would "look like." We poured water from a gallon bucket at the approximate rate of flow per minute as suggested and then tried to relate that to the flow from one pool to the other. For us it was not only trial and error but a real learning process. We did not cut any liner in the stream or waterfall until we were certain that they were large enough to accommodate the water spillage. Once we were satisfied with the "look" we cut the liner and edged the pools and stream with stone and small boulders.

I have not mortared any of the stone used in the pond because it has not seemed necessary. The waterfall has needed adjustment every spring as some of the smaller stones seem to get moved about. I've thought about mortaring these stones. If I had young, curious children, I would mortar all of the edges for security.

Stocking the pond

My husband took our youngest daughter, Loren, to get fish for the pond when it was completed and cured. They returned with 12 4-in. to 5-in. koi and, yes, one frog. The koi were eaten by the blue heron during the first fall probably because we trained them to come to the water's edge when we splashed the surface. The heron did the same. We now, jokingly, ask my daughter,

"Loren, which frog is yours?" Because of the heron, we have not restocked the pond but nature has by means of visiting ducks and frogs, and we now have various goldfish, tadpoles in the spring, and small black snails that enjoy the shallow stream area.

Planting the pond

Adding plantings to the pond has been a continuous process. I have used only a few plants compared with the numbers available. I have planted in containers on the bottom of the pond the essential submerged hardy plants that starve out algae and help to keep the pond water naturally clear, i.e. *Myriophyllum* spp., *Cabomba caroliniana* and *Ceratophyllum demersum*. Every year I add to my collection of marginal* plants. A few of the plants that I now grow in water came from my perennial garden, i.e. horsetail (*Equisetum hyemale*), ribbon grass (*Phalaris arundinacea*), *Houttuynia*, and *Iris sibirica* varieties. I dug up the spike rush (*Eleocharis monleuensis*) reed from a natural pond in a neighboring pasture, and it makes a great clumping accent plant in large ponds. I also dug up cattail (*Typha latifolia*), and it's so invasive that it outgrew a huge container in one year, but its tall spikes are in scale with the pond. During the summer my friends bring all of their excess water hyacinths and drop them in my pond. I love the way parrot's feather (*Myriophyllum aquaticum*) trails across the water and the native aquatic mint (*Mentha aquatica*) reaches out and over the stones forming a lovely edging. Water lilies thrive in my pond for it has sun for six hours a day. Currently, I am adding the tropical night bloomers because we enjoy the pond in the evening.

Living with a pond in the landscape

Connecting the pump in the spring, for me, is a symbolic rebirth of my pond and

*Vertical accent plant in pond landscape.

garden. Creating this water feature required a great deal of work but it was a thrilling, worthwhile experience. If I were ever to create another pond there are changes I would make, using the experiences gained from the first.

The pond, with its water plants, fish, turtles, snakes, frogs and dragonflies, has brought a new dimension to the garden and has made it come alive in the way that only water can. I have gardened for many years but this endeavor was different. You must experience it for yourself, and I encourage you to "do-it-for-yourself."

Pond costs (approximate)

Pump (Speck — Landcrafters Waterfall Creations)	\$500.00
Liner — Butyl, 45 mil./black, 35'x35'	700.00
PVC Tubing, Fittings, etc.	180.00
Bio-filter	240.00
Stone	500.00
Backhoe and Trenchdigger Rental	280.00
Electrician	300.00
Lighting — modular	300.00

Evelyn K. Seaton is a graduate of the Arboretum School of the Barnes Foundation. Many of the shrubs and perennials Evelyn grows in her garden are to use in fresh and dried flower arrangements. She has won blue ribbons for design entries at both the Harvest and Philadelphia Flower Shows. Together with Midge Ingersoll, she has won the Best of Show for the Outstanding Miniature Setting Exhibit at the 1993 and 1994 Philadelphia Flower Shows. Evelyn enjoys inspiring novice gardeners and flower arrangers in her classes at two local South Jersey Adult Schools.

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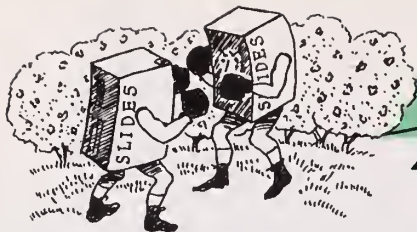
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Letters to the Editor

Kodak versus Fuji

Slides, which is fairest of them all?

Green Scene, March 1996

I detected a bias towards Fuji films on the part of Richard Bitner in the article Kodak vs. Fuji.

Actually, the premise of Fuji versus Kodak is a bad one to begin with, since Kodak offers two choices: Kodachrome and Ektachrome, which are as different as chalk and cheese. Furthermore, Ektachrome is available in a multitude of film speeds, the best of which tends to be Ektachrome 64 Professional. I use Ektachrome 64 Professional, but I wouldn't use any of the other Ektachromes because I think they lack sharpness and brightness. Kodachrome is excellent for 'flesh' tones (reds and orange), while Ektachrome is a preferred landscape film because it offers good greens, yellows and blues. Kodachrome's greens tend to be 'muddy,' like Fujichrome, unless there is a lot of light on the subject.

The captions to the photographs in the article are meaningless because the specific slide film is not named. Fuji and Kodak are *company* names, not film types. Fujichrome 50 is a film type, Ektachrome 64 is a film type, Kodachrome 50 is a film type. It would be more meaningful to show the same flower photographed under the same lighting conditions on Fujichrome 50 and a comparison with both Kodachrome 50 and Ektachrome 64.

I recently won a contract to supply Lifestyle Software company with 1,000 slides for a CD-ROM because my Ektachrome 64 slides were superior to the Fujichrome and Kodachrome submitted by other photographers. I also won a contract with Microsoft for Ektachrome slides, because my Ektachrome photography was preferred for software purposes. Both Kodachrome and Fuji cause problems in CD-ROM format since their dull greens tend to turn black on a computer screen.

Both *Southern Accents* magazine and *Architectural Digest* have written to their freelance photographers specifically asking that they *not* shoot on Fujichrome because of color distortions. Moreover, color distortions are affected by light, especially in shady conditions, which can turn shadow areas black on Fujichrome and Kodachrome, and blue with Ektachromes.

Worse than the confusion over slide

In response to Derek Fell's suggestion Richard L. Bitner took these two photos within a minute of one another. We leave it to the reader to decide which is better.

Kodak Ektachrome 64 Professional.

Fujichrome Velvia Professional.



photos by Richard K. Bitner



films, is the confusion over what prevents spoilage of film in storage. Kodak technicians claim that under proper storage conditions — darkness, low humidity, and lower temperature — their color slide films will retain their color for the life of the photographer. I have been shooting Ektachrome professionally for more than 30 years, and always maintain my slides in a dark, air-conditioned room. Most of my 30-year-old slides are still usable. Expose any slide to humidity, warm temperatures, or bright light and the color fades quickly.

A factor in storage is also the condition the film is stored under, *prior* to use, and the length of time between exposure and processing. Ektachrome 64 maintains its quality and stability only when kept cool.

Derek Fell
Gardenville, Pa.

Richard Bitner replies:

Any writer is pleased when an article is being read. But it is even better when one's commentary provokes controversy and discussion. Derek Fell is obviously a person of vast experience and specific knowledge about these matters. I think that what he has to say about Kodak adds considerably to the article — providing some detailed

footnotes, so to speak. The piece was meant to be very general, to introduce to readers of a *gardening* publication the notion that choice of film can make a difference (though much of the article dealt with other issues). It was not a treatise in a technical photography manual.

I was not able to confirm Fell's assertion that "Many publishers are asking photographers to stop using Fuji." I spoke to the photography editors of the four leading national gardening monthlies; all four said they have no policy about slide film they consider for publication. They all asserted that most of their submissions are Fuji.

As reported in the article many of my correspondents agreed with Derek Fell on the importance of proper slide storage conditions.

Ken Druse's informative comments illustrate that two persons of similar experience and recognition in the field can have decidedly different opinions. It appears that photography, like gardening itself, is an art form. One person's favorite plant is another's weed.

Readers can pick their favorite from the above photos I took within a minute of one another on a late April afternoon. The Fuji was processed by a local lab, the Ektachrome 64 Professional by Kodak. The film was kept cool until processed.

Further comments

Author/photographer Ken Druse was a respondent to Richard Bitner's query about film use in the March issue of *Green Scene*. Because Ken is the former editor of *Garden Design Magazine*, a frequent contributor to other national magazines, and author/photographer of many well-known books, we asked him to amplify his remarks used in the Bitner survey. Here's his reply:

Asked to comment further on my experience with film stocks, I realized that a casual reference to the fact that I do not shoot slides for projection, but for reproduction, is an important notation. When I give a slide lecture, I have all my photographs duplicated from my medium format (6×4.5 centimeter) to 35 millimeter. Every time you add a generation to the process, the product suffers, whether that is a duplicate slide or printed book or magazine image. I was quoted accurately in the article, "clients tended to purchase his Fuji shots." They don't care, or know, what they are looking at, they just know what they like. Fuji Velvia is "super-real," maybe too bright, but by the time it gets into print in a magazine or is duplicated for projection, it degenerates. I find that having an original with the clearest, cleanest, "punchy" color and good detail survives reproduction with the least degradation.

When I show slides (duplicates) in a lecture, the copies made from Velvia still get the oohs and ahs. That doesn't mean that they have accurate color, however, and I have tested every film stock in the 50 to 100 ISO range. If you tried, as I did years ago, the old Fuji 50, which turned clouds pink, look again.

I shoot early in the morning, in the evening, or on cloudy days to avoid contrasting shadows. As far as I am concerned, Kodachrome exaggerates red and reduces the widely varied greens of nature to light and dark values of one dull hue. Comparing that aspect to Ektachrome Professional Plus (EPP), the Kodachrome pales, there are ten times the greens in the Ektachrome. I don't use the old Ektachrome 64 — although it is quite "clean," it is too blue for me. If I have to suffer the speed reduction, I use Fuji Velvia. It has many good greens, but is better than EPP in the shadows. Compared side by side, the Velvia has more detail in the dark areas where the EPP looks brown.

As for realistic accurate recording, there is only one film — it is EPN, a Kodak product made for copying artwork and testing fabrics, etc. when accurate color is necessary. This is the one and only film stock that will capture the elusive blue of a

morning glory or ageratum. But for my markets — magazines, for the most part, don't even look at this stuff — it is too dull, and truth be told, it comes out grayish when reproduced.

Obviously, what looks good is subjective. Bottom line: experiment, and find out what you like.

My latest book, *The Collector's Garden* (Clarkson N. Potter, N.Y., March, 1996) is really my first book to have a substantial amount of Fuji Velvia. If you look at the section on Wave Hill, Ektachrome and Fujichrome are both there — I'll bet you'll be able to pick out the Fuji in some cases. Attending lectures by Marco Polo Stufano of Wave Hill who used slides shot with Velvia led me to try Velvia in the first place.

Ken Druse
Brooklyn, N.Y.

A note to express my enthusiasm and appreciation for Richard Bitner's article on color film.

The subject of selection of color film points to an obvious but too often overlooked fact: film is just as important as the camera and lenses used by the photographer, and the horticultural photographer is always dealing with color nuances.

One thing about color perception is that a number of men are partially deficient in color discrimination, whereas women are not. This is not the same as color blindness and is not as readily recognized, because by its nature it is only a slight deviation. This minor dysfunction can often be a determining factor in film selection though.

Films do have varying characteristics under different lighting conditions. Note the overall blue cast in many magazine reproductions where green is the predominant tone. It happens in shade and often on overcast days. That is only one of the more obviously noticeable defects that can occur.

Many thanks to Dick for bringing this problem to the forefront and for his ingenious and thoroughgoing technique for examining a convoluted aspect of photography.

L. Wilbur Zimmerman
Bryn Mawr, Pa.

I read with great interest Richard Bitner's article about Kodak vs. Fuji. I am a photo-hobbyist and enjoy using Lumiere-X slide film by Kodak. It is a very warm film giving me very true flower colors. No mention of this film took place in the article.

Please try it — you'll like it!

Melvyn H. Wolk
Waverly, Pa.

BOOKS AND RESOURCES

 by Jane Alling

- * *The Book of Swamp and Bog: Trees, Shrubs, and Wildflowers of the Eastern Freshwater Wetlands*, John Eastman, Stackpole Books, Mechanicsburg, PA, 1995.
- * *The Complete Book of the Water Garden*, Philip Swindells, Overlook Press, Woodstock, NY, 1990.
- * *The Damp Garden*, Beth Chatto, J.M. Dent, London, 1982.
- * *Earth Ponds: The Country Pond Maker's Guide to Building, Maintenance and Restoration*, Tim Matson, Countryman Press, Woodstock, VT, 1991.
- * *English Water Gardens*, Guy Cooper, Little Brown, Boston, 1987.
- Garden Pools and Fishponds*, Ron Warring, Stanley Paul, 1971.
- * *Garden Views III: Water & Stream Gardens*, Takenosuke Tatsui, Eiachiro Baba, Tokyo, 1991.
- * *Gardening with Water*, James Van Sweden, Random House, New York, 1995.
- The Pond Book*, Valerie Porter, Christopher Helm, London, 1988.
- * *The Pond Doctor: Planning & Maintaining a Healthy Water Garden*, Helen Nash, Sterling, New York, 1994.
- * *Pool and Waterside Gardening (Kew Gardening Guide)*, Peter Robinson, Collingridge Books, Twickenham, England, 1987.
- * *The Popular Guide to Garden Ponds*, Dick Mills, TetraPond, Blacksburg, VA, 1992.
- * *The Stream Garden*, Archie Skinner, Ward Lock, London, 1994.
- * *Wall and Water Gardens* (rev. ed.), Gertrude Jekyll, Ayer, Salem, NH, 1983.
- * *The Water Garden: A Guide to Designing, Installing and Planting Ornamental and Natural Water Features for Any Garden*, Anthony Paul, Viking Penguin, New York, 1986.
- * *The Water Garden: A Practical Guide to Planning & Planting (The Wayside Garden Collection)*, Peter Robinson, Sterling, New York, 1995.
- * *The Water Garden: Styles, Designs and Visions*, George Plumptre, Thames and Hudson, London, 1993.
- * *The Water Gardener: A Complete Guide to Designing, Constructing and Planting Water Features*, Anthony Archer-Wills, Barron's, New York, 1993.
- * *Water Gardening (Burpee American Gardening Series)*, Ken Druse, Prentice Hall, New York, 1993.

continued

*Books available to members through the PHS Library. Available to non-members for use in the Library.

Books and Resources

- * *Water Gardening*, Experts at Denver Botanic Gardens, et. al., Pantheon Books, Knopf Publishing Group, NY, 1996.
- * *Water Gardening: Water Lilies & Lotuses*, Perry D. Slocum & Peter Robinson with Frances Perry, Timber Press, Portland, OR, 1996.
- * *Water Gardening Basics*, William C. Uber, Dragonflyer Press, Upland, CA, 1988.
- * *Water Gardens for Plants & Fish*, Charles Thomas, T.F.H. Public, 1988.
- * *Water Gardens: How to Design, Install, Plant and Maintain a Home Water Garden*, Jacqueline Heriteau & Charles B. Thomas, Houghton Mifflin, Boston, 1994.
- * *Water Gardens: The Connoisseur's Choice*, Roddy Llewellyn, Ward Lock, London, 1987.
- * *Water in the Garden*, James Allison, TetraPond, Blacksburg, VA, 1991.
- * *Waterlilies and Other Aquatic Plants*, Henry Holt, New York, 1989.
- * *Waterscaping: Plants and Ideas for Natural and Created Water Gardens*, Judy Glattstein, Storey Communications, Pownal, VT, 1994.
- * *Water: The Use of Water in Landscape Architecture*, Susan and Geoffrey Jellicoe, Adam & Charles Black, London, 1971.
- Your Garden Pond*, K.H. Wieser & Dr. P.V. Loiselle, Tetra-Press, 1986.

VIDEOS

- * "Pond Construction & Natural Filtration."
- * "TetraPond Video for a Successful Garden Pond."
- * "Water Gardening with Lilypons."

PUBLIC GARDENS

Many public gardens have water features; see *Gardens of North America & Hawaii**, Irene & Walter Jacob, Timber Press, Portland, OR, 1985. Several Philadelphia gardens have water features and here's a reference to find out which ones. *Gardens of Philadelphia and the Delaware Valley** by William Klein, Jr. (Temple University Press, 1995), or by contacting The Gardens Collaborative, 9414 Meadowbrook Avenue, Philadelphia, PA 19118.

ORGANIZATIONS

International Water Lily Society, Santa Barbara Botanic Garden, 1212 Mission Canyon Road, Santa Barbara, CA.

Delaware Valley Water Garden Society, Fred & Cynthia Weiss, 339 Valley Road, Merion Station, PA 19066.

WATER GARDEN RESOURCES

Gateway Landscaping & Garden Center, 1170 Old Lancaster Pike, Hockessin, DE 19707, 302-239-4675, Fax 302-239-4502.

Lilypons Water Gardens, 7000 Lilypons Road, P.O. Box 10, Buckeystown, MD 21717-0010, 301-874-5503, Fax 301-874-2325.

The Ponds at Potters, Potters Landscaping Co., 359 Paoli Pike, Malvern, PA 19355, 610-647-2926.

Snipes Farm & Nursery, 890 W. Bridge St., Morrisville, PA 19067, 215-295-1138, with outlets in Yardley and Newtown.

Stephens Garden Creations, Inc., *Steps in Designing a Pond*, P.O. Box 321, Gradyville, PA 19039.

Trees by Toulaiatos, *Water Gardening How-to Guide*, 2020 Brooks Road, Memphis, TN 28116.

Waterloo Gardens, 200 N. Whitford Road, Exton, PA 19341, 610-363-0800, Fax 610-363-6416.

The Urban Farmer Store, 2833 Vicente St., San Francisco, CA 94116, 415-661-2204.

The Waterworks, Tilley's Nursery, 111 E. Fairmount St., Coopersburg, PA 18036, 610-282-4784, Fax 610-282-1262.

MAGAZINES

The Water Gardener, Dog World Publications, 9 Tufton St., Ashford, Kent, England, TN 23-1QN, 011-44-1233-621877, Fax 1233-645-669, Subscription: \$53.37/year.

Water Gardening: The Magazine for Pondkeepers, 1670 S. 900 E., Zionsville, IN 46077, 317-769-3278, Fax 317-769-3149, Subscription (10 issues a year): \$30.

Water and Water Features Articles from Past issues of *Green Scene*

This is the second entire issue we've prepared on the subject of water, the first — *Water the Noblest Element* — appeared in July, 1988. And over the years we've published articles about watering and water features. We've listed below articles that have appeared in past issues of *Green Scene*.

Water the Noblest Element/Articles that appeared in the July 1988 issue

In Celebration of Water, Anne LaBastille
 Watering Houseplants: An expert discusses the Principles, Joan Feuer
 H₂O Waste Not, Wilt Not: Managing Water in Your Garden, Ed Lindemann
 Hoses and Other Implements of Garden Torture, Sally McCabe
 Watershed Associations Work for Balanced Communities: Become Part of the Solution, Denise Naidu Snyder
 Water Features in the Small Garden, Ralph & Liz Schumacher
 Clear Water in the Ornamental Garden Pond, Joan Nangle
 Creating a Hardy Perennial Bog Garden, Yvonne Giunta
 Building a Pond in a Community Garden, Mary Pat Kane
 Delivering Water to a Community Garden, Jeannine Vannais and Rick Draper

Articles that appeared in other issues

The Astonishing Victoria Water Lilies at Longwood Gardens, Louis E. Randall, May 1986
 Automatic Orchid Watering Contraption, Curtis Lizenbaum, November, 1990

A Budget Barrel of Atmosphere, Ed Lindemann, March 1981

Building a Fountain that Goes with the Flow, Stephanie and Charles Andrews, January 1987

Growing Aquatics in Containers, Robert Hays, May 1986

Hardy Water Lilies, an Easy Perennial for Your Garden, Sally McKeehen, November 1977

How You Can Learn to Stop Worrying and Love Drought, Libby Goldstein, July 1981
 Indoor Garden Pools, Helen Tower Brunet, November 1980

Save Time, Energy & Water, Frannie Cullen, May 1986

Water: Toward an Automated Garden, John Gyer, January 1977

Water [features] in the Garden, William S. Patten, July 1986

Water Lily 'Margaret Mary,' Robert Ryan, March 1974

Water Reminders, Anne S. Cunningham, May 1989

Watering Houseplants: An expert discusses the principles, Joan Feuer, July 1988

Winter Watering, Bonnie J.S. Day, November 1981

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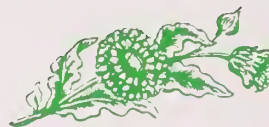
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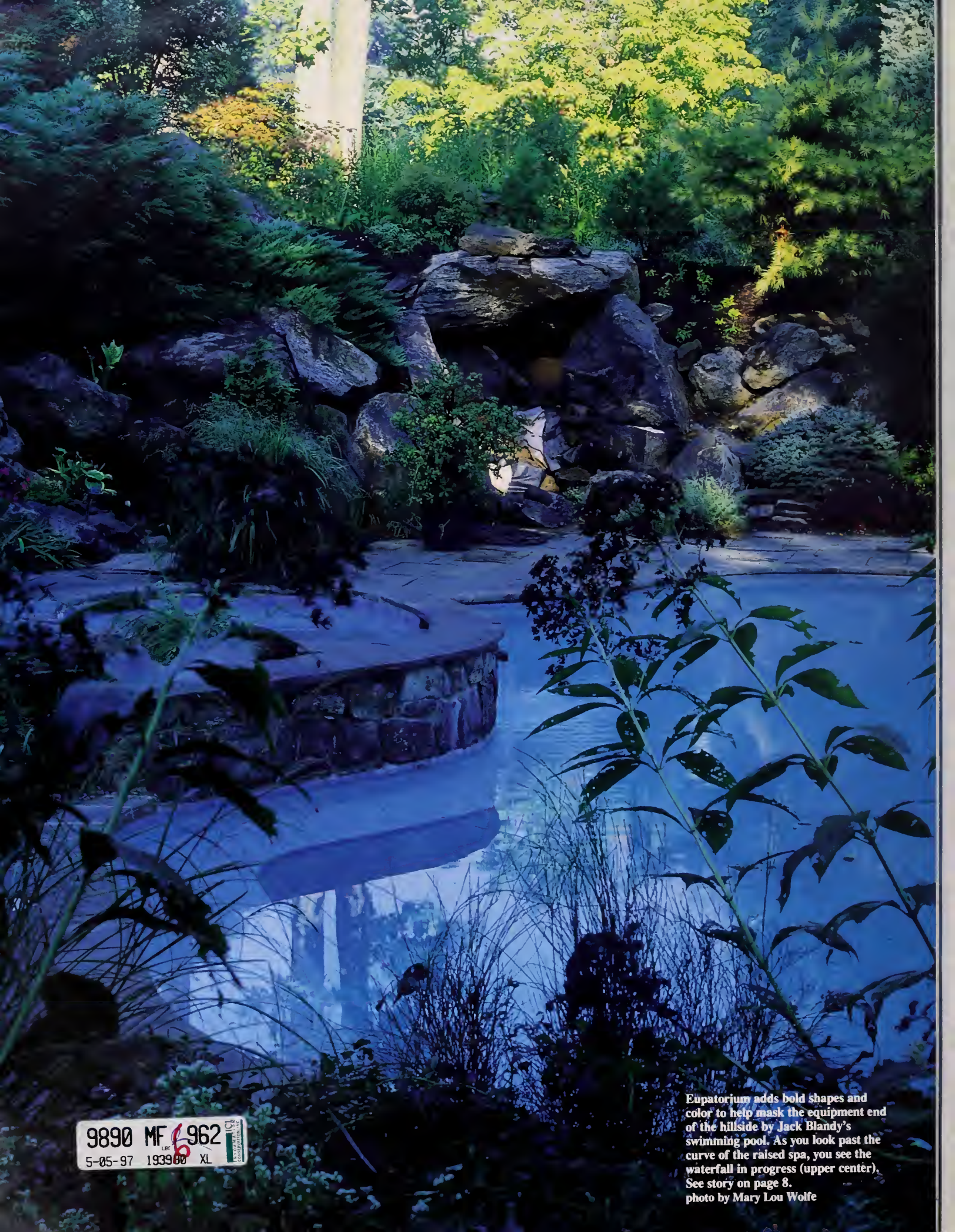
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Eupatorium adds bold shapes and color to help mask the equipment end of the hillside by Jack Blandy's swimming pool. As you look past the curve of the raised spa, you see the waterfall in progress (upper center). See story on page 8.
photo by Mary Lou Wolfe

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